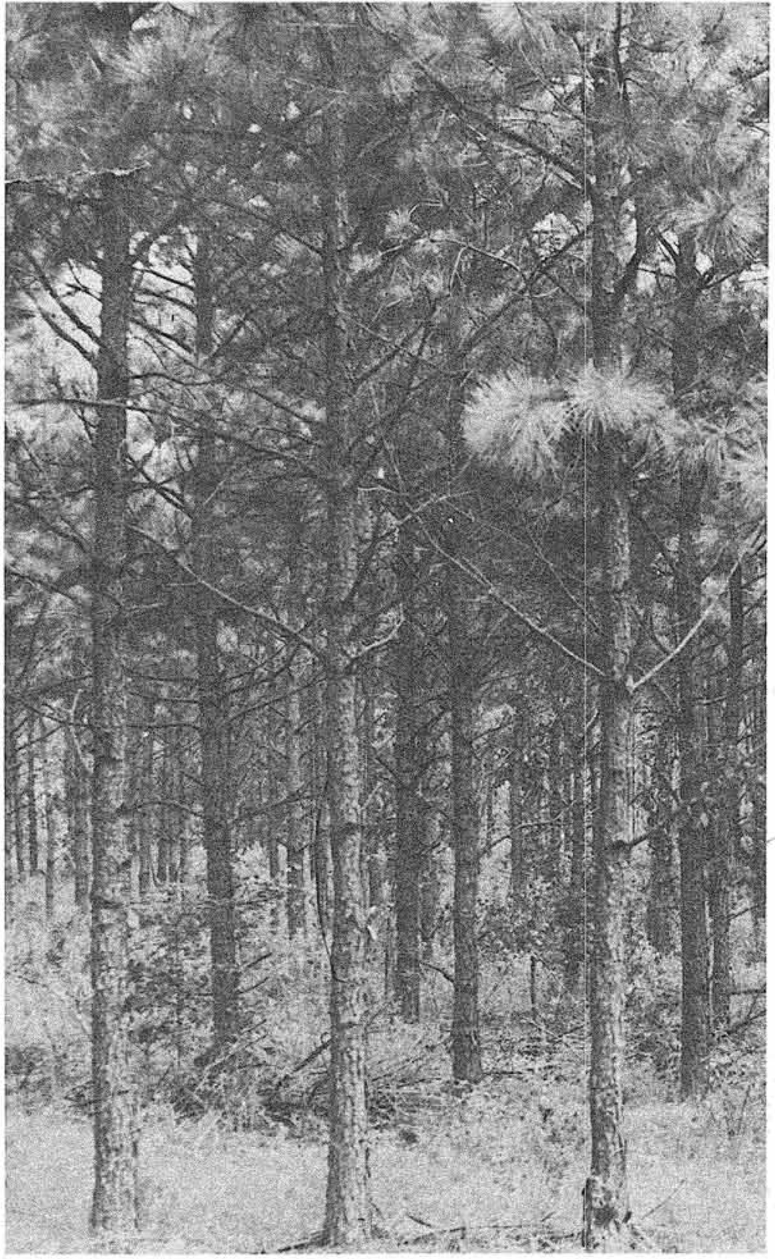
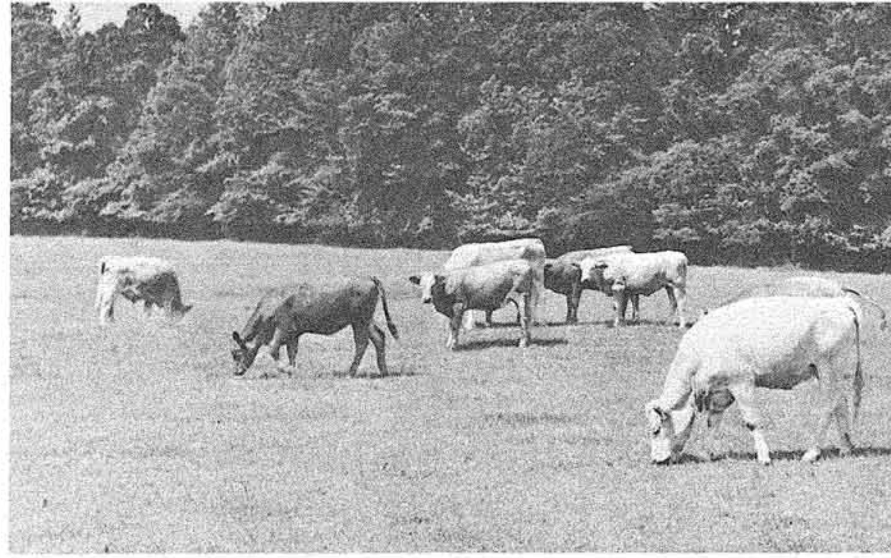


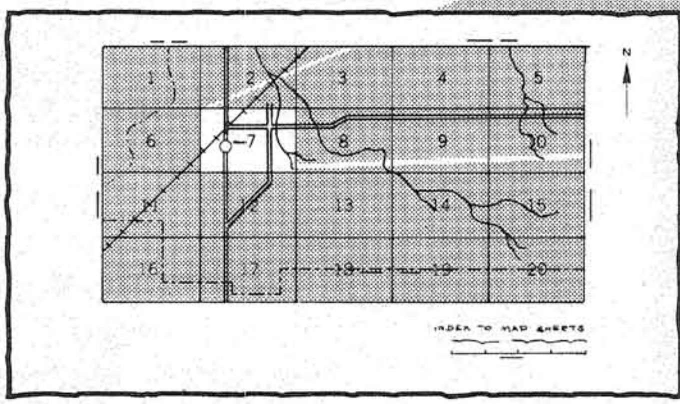


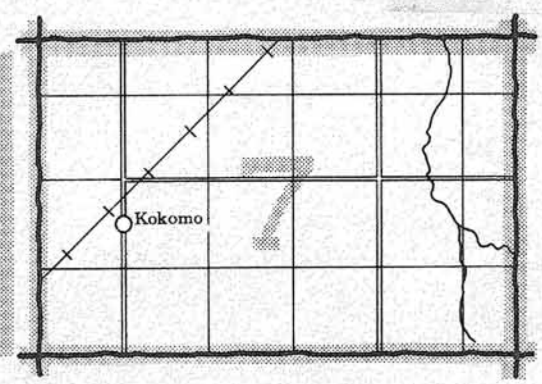
Soil survey of Ashley County, Arkansas

United States Department of Agriculture
Soil Conservation Service and Forest Service
in cooperation with
Arkansas Agricultural Experiment Station

HOW TO USE

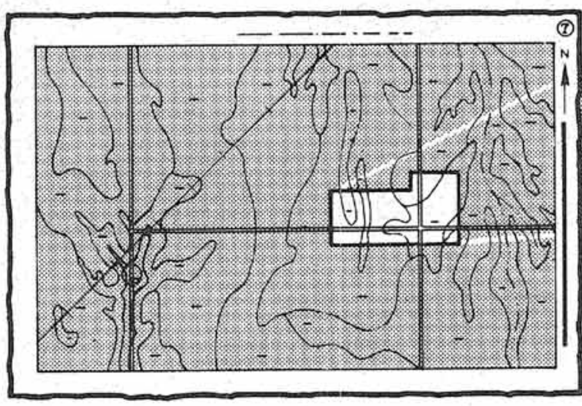
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

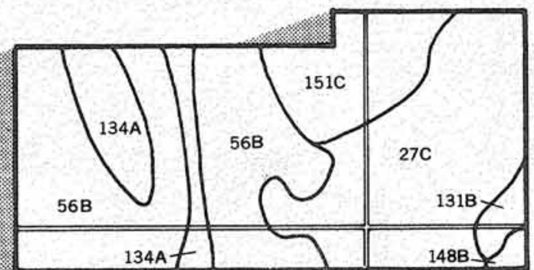




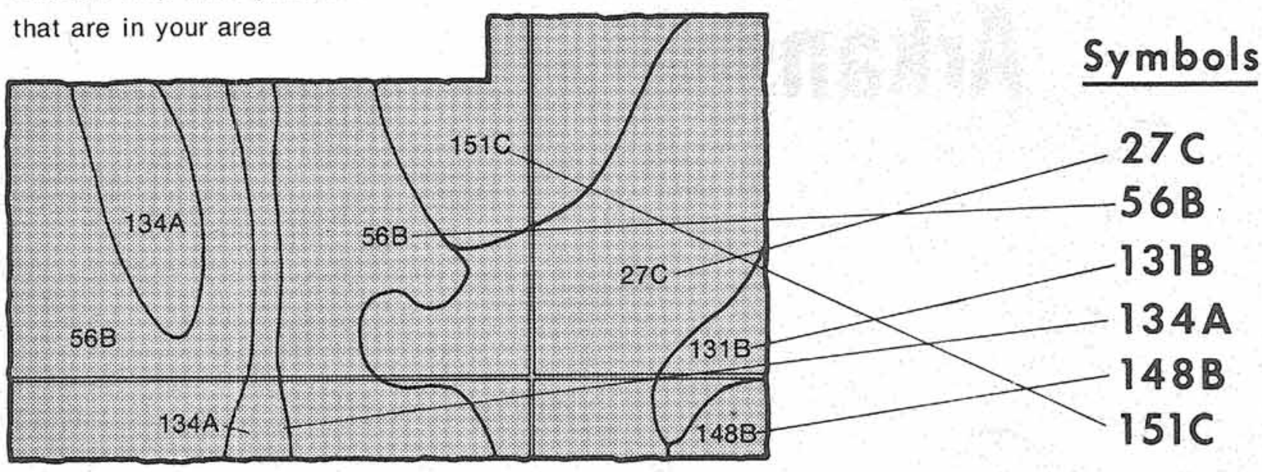
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



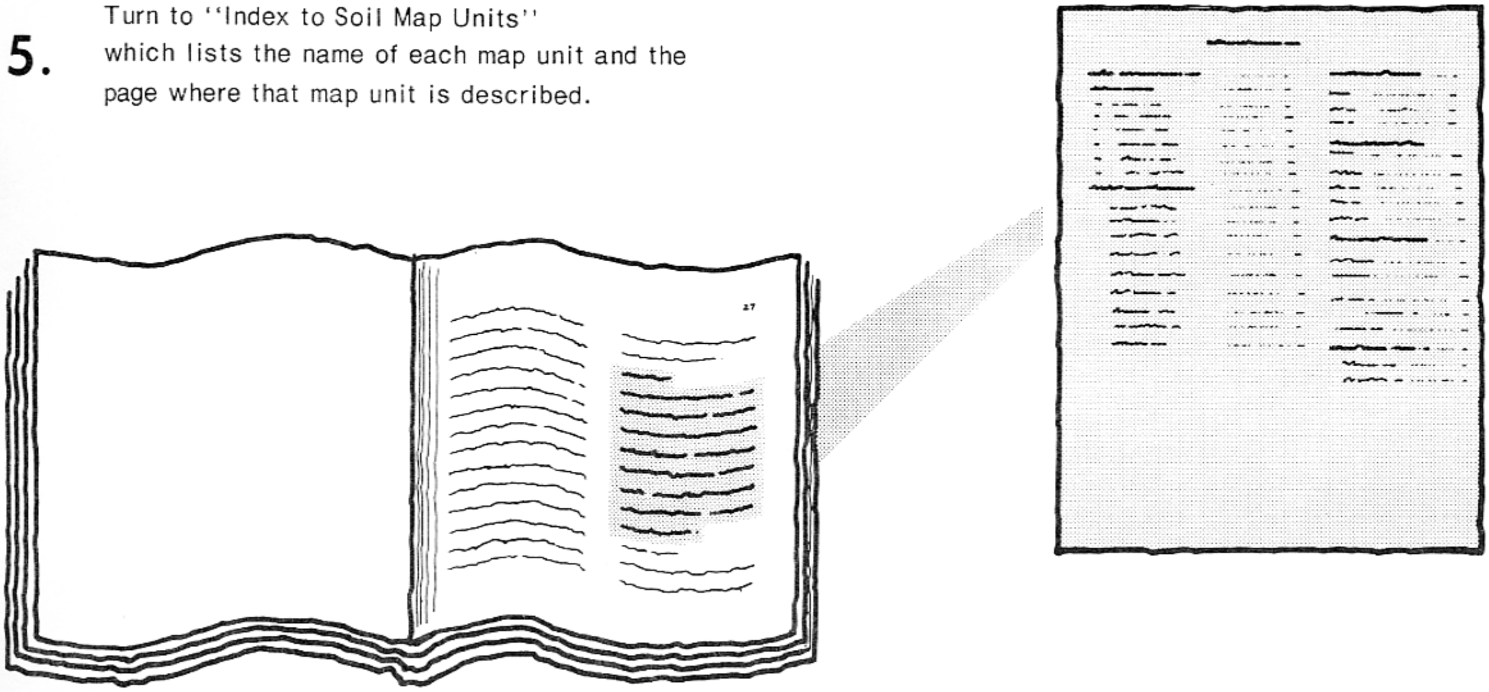


4. List the map unit symbols that are in your area

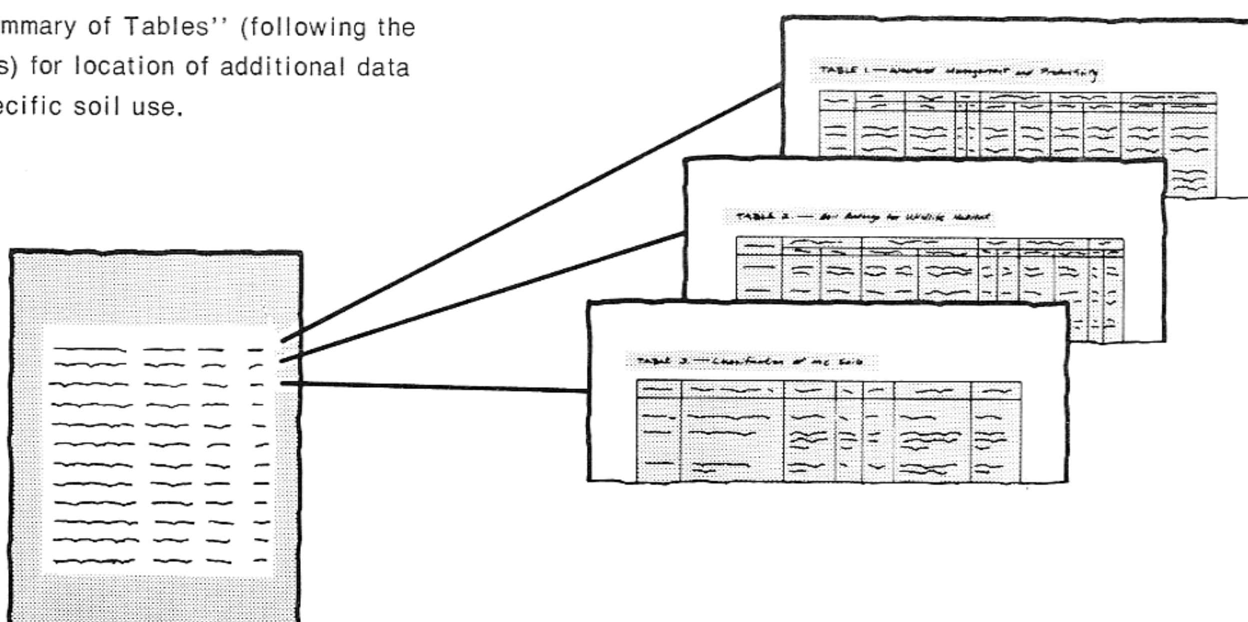


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1971-76. Soil names and descriptions were approved in 1977. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1977. This survey was made cooperatively by the Soil Conservation Service, the Forest Service, and the Arkansas Agricultural Experiment Station. It is part of the technical assistance furnished to the Ashley County Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Ashley County's diversified agriculture is based primarily on forestry and general farming. Typical examples include a well managed stand of loblolly pine (left) on Ruston fine sandy loam, 1 to 3 percent slopes; a pasture of bahiagrass (upper right) on Sacul fine sandy loam, 1 to 3 percent slopes; and an irrigated field of young rice (lower right) on Portland silty clay, 0 to 1 percent slopes.

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Issued December 1979

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Summary of tables

Summary of tables—Continued

Foreword

The Soil Survey of Ashley County contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

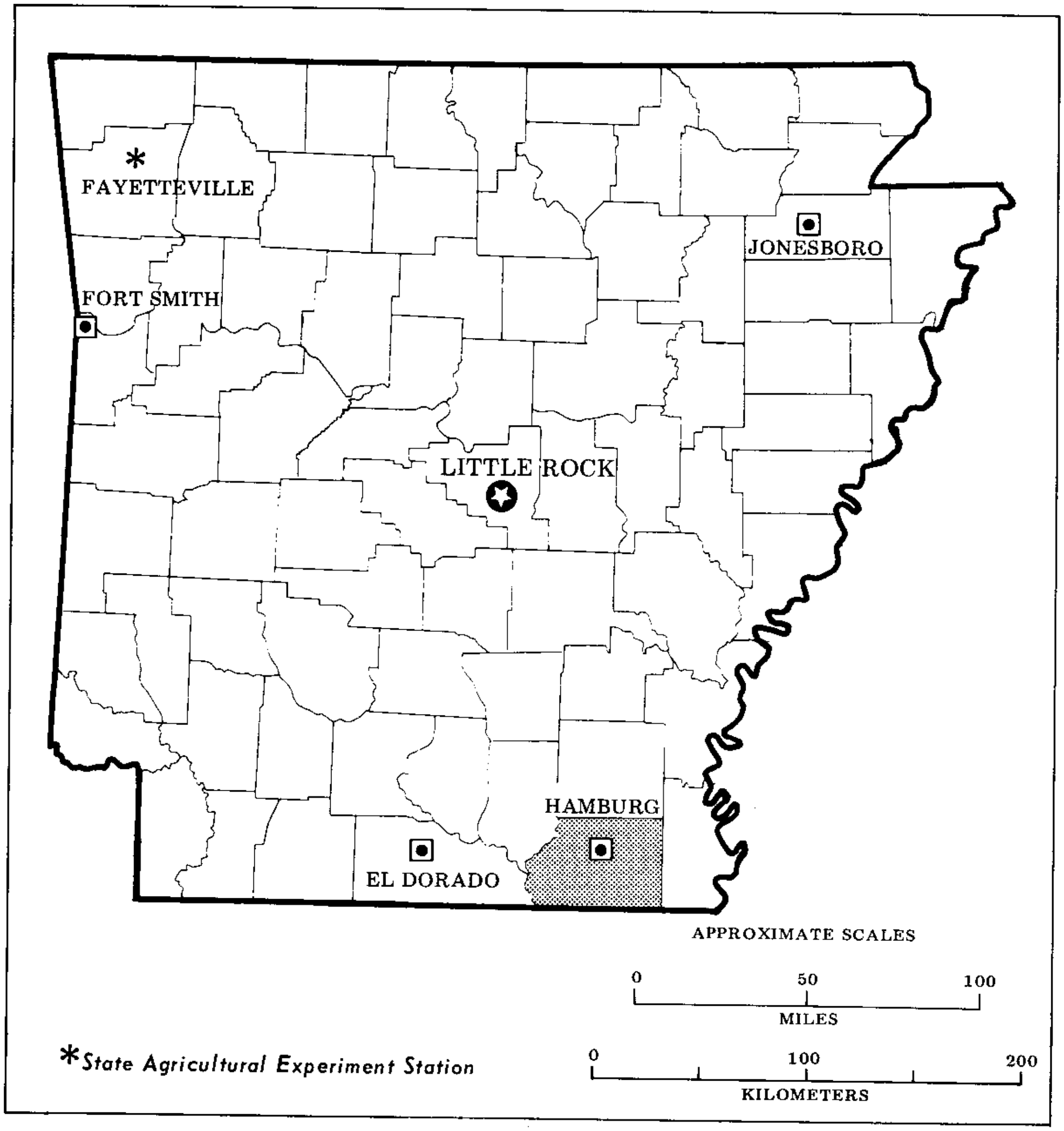
Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

M J Spears

M. J. Spears
State Conservationist
Soil Conservation Service



Location of Ashley County in Arkansas.

SOIL SURVEY OF ASHLEY COUNTY, ARKANSAS

By Hiram V. Gill, Don C. Avery, Fred C. Larance, and Charles L. Fultz,
Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service, and Forest Service
in cooperation with Arkansas Agricultural Experiment Station.

ASHLEY COUNTY is in southeastern Arkansas, about 17 miles west of the Mississippi River. The county is generally a rectangle except for the irregular western boundary formed by the Ouachita and Saline Rivers. It is about 36 miles wide across the southern boundary and about 27 miles from north to south.

The county is bound on the east by Chicot County, on the north by Drew County, on the west by Bradley and Union Counties, and on the south by Morehouse Parish, La. The total area is 597,920 acres, or 934 square miles. The land area is 593,920 acres, or 928 square miles.

In 1970 the population was 24,976. The principal towns in decreasing order of population are Crossett (6,191); the county seat, Hamburg (3,102); Wilmot (1,132); Portland (662); Montrose (558); Parkdale (459); and Fountain Hill (266).

The economy of the county is based on producing and processing wood products and on general farming. Except for a few manufacturing plants, most of the businesses provide agricultural services.

General nature of the county

Soils in the county formed in a variety of sediments. The soils on bottom lands in the eastern part of the county formed in loamy and clayey sediments deposited mainly by the Mississippi River and its tributaries. These soils contain moderate to high amounts of plant nutrients. Excepting areas dedicated to wildlife habitat, nearly all the bottom land is cultivated. Excess water drains slowly or is ponded; this excess is a moderate to severe hazard over most of the area. With the exception of a few escarpments, erosion in this part of the county is not a major concern.

Soils on uplands and their associated local flood plains make up the rest in the county. In the eastern part of the uplands, soils formed mainly in loamy wind-blown deposits. In the western part, the soils formed mainly in older loamy and clayey sediment laid down in a former shallow sea.

The upland soils are generally suitable for improved pasture and cultivated crops, but most are in forest. Generally, the soils in the uplands contain low to moderate amounts of plant nutrients. Excess water on the level soils and erosion on the more sloping soils are moderate to very severe hazards to soil use. Frequent flooding on the local flood plains limits their use to forest.

Elevation in the county ranges from about 55 feet in the Ouachita River flood plain to about 195 feet in the uplands.

Farming

The first settlers came to Ashley County about 1840 and located along Bayou Bartholomew. A settlement was made at Fountain Hill about 1841. The county was organized and Hamburg was named as the county seat in 1846. The early settlers cleared small tracts on the higher, better drained land to grow corn and vegetables for their own use and to grow cotton as a money crop. Large plantations gradually developed along Bayou Bartholomew, where cotton and feed crops were grown. Farming increased steadily until the outbreak of World War II, and then the number of farmers started declining in the uplands. Lumbering has become important to the economy of the county.

About 28 percent of the county is in grain and livestock farms. The rest is extensive commercial wooded tracts, farmer-owned wooded tracts, towns, water, and transportation and utility facilities. Farming is general—soybeans, cotton, rice, small grain, peanuts, and truck crops are important in the county. Table 1 shows the acreage of principal crops and pasture, in 1969 and 1974, and table 2 gives the kind and number of livestock.

Farms in Ashley County are decreasing in numbers and increasing in size.

Physiography and drainage

The geographical deposits at the surface of Ashley County are unconsolidated sediments laid down by water and wind. Generally, the Southern Coastal Plain deposits make up the western third of the county. The Southern Mississippi Valley Silty Uplands—the loessial plains—are in the central third of the county. The rest of the county—the eastern third—is covered by deposits of Southern Mississippi Valley Alluvium. The unconsolidated sediments are several hundred feet thick over bedrock.

Three main topographic divisions of the county can be made: the rolling uplands, the flatwoods uplands, and the stream flood plains.

The rolling uplands, running north and south, divide the eastern and western drainage systems. The eastern part drains into Overflow Creek and Bayou Bartholomew, and the western part drains into the Ouachita and Saline Rivers. Slopes range from 0 to 12 percent.

The flatwoods uplands lie mainly to the east of the rolling uplands. Most of the drainage of the flatwoods is to the south by Chemin-a-Haut Creek, which runs into Louisiana. The slopes are generally less than 1 percent, but some ridges have slopes ranging from 3 to 12 percent. Where the flatwoods end abruptly and drop into the flood plains, there are short escarpments of 5 to 20 feet.

The largest area of stream flood plains is along Bayou Bartholomew and Overflow Creek. Slopes are generally less than 1 percent, but small areas are undulating, with short slopes of as much as 8 percent. Smaller areas of flood plains are along the Saline River and its tributaries. Large areas are flooded frequently along the Ouachita River where slopes are less than 1 percent.

The major tributary streams to the main drainageways are Bearhouse Creek, Beech Creek, Whiteoak Creek, Flat Creek, and Brushy Creek. These streams have numerous small tributaries throughout the uplands.

Climate

Prepared by the National Climatic Center, Asheville, N.C.

Ashley County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is adequate for all crops.

Table 3 gives data on temperature and precipitation for the survey area, as recorded at Crossett, Ark., from 1951 to 1975. Table 4 shows probable dates of the first freeze in fall and the last freeze in spring. Table 5 provides data on length of the growing season.

In winter the average temperature is 47 degrees F, and the average daily minimum temperature is 36 degrees. The lowest temperature on record, which occurred at Crossett on February 2, 1951, is -9 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 92 degrees. The highest recorded temperature, which occurred on July 16, 1954, is 108 degrees.

Growing degree days, shown in table 3, are equivalent to heat units. During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 27 inches, or 50 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 21 inches. The heaviest 1-day rainfall during the period of record was 6.48 inches at Crosett on April 25, 1958. Thunderstorms occur on about 65 days each year, and most occur in summer.

Snowfall is rare; in 60 percent of the winters there is no measureable snowfall. In 20 percent, the snowfall, usually of short duration, is more than 2 inches. The heaviest 1-day snowfall on record was more than 7 inches.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The percentage of possible sunshine is 65 in summer and 50 in winter. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, in March.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rains for 1 to 3 days.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each unit is rated for cultivated farm crops, pasture, woodland, and urban uses. Cultivated farm crops grown include soybeans, cotton, corn, rice, grain sorghum, and wheat. Pasture refers to land in improved grasses such as bermudagrass or bahiagrass. Woodland refers to land managed for the production of such tree crops as pine. Urban uses include residential, commercial, and industrial uses.

Descriptions of the map units on the general soil map of Ashley County follow.

Areas dominated by level to moderately sloping soils on uplands

Map units 1 through 5 make up about 54 percent of the county. They are on the uplands of the Coastal Plain and loessial plains. These soils are loamy and are poorly drained to moderately well drained. They formed in loamy and clayey sediments.

1. Amy-Pheba

Poorly drained and somewhat poorly drained, level and nearly level, loamy soils; on uplands

Areas of these soils are mainly in the western part of the county. They are on broad upland flats of the Coastal Plain. They formed in thick beds of loamy marine sediments.

This map unit occupies about 8 percent of the county. It is about 40 percent Amy soils, 35 percent Pheba soils, and 25 percent minor soils.

Amy and Pheba soils are in similar positions on the landscape, but Pheba soils are slightly higher. Amy soils are poorly drained, and Pheba soils are somewhat poorly drained. Both soils have a silt loam surface layer and a seasonal high water table.

The minor soils in this unit are the well drained Smithdale, Pikeville, and Ruston soils and the moderately well drained Tippah, Savannah, and Sacul soils on upland hills; the poorly drained Lafe soils on upland flats; and the well drained Ouachita soils and the poorly drained Guyton soils on flood plains and stream terraces.

This unit is used mainly for woodland, but a few small areas of the better drained soils have been cleared mainly for pasture. Wetness and erosion are the main limitations for farming and most other uses.

This unit has fair potential for cultivated crops. Tillage operations are commonly delayed several days after a rain because of wetness. This unit has good potential for pasture. Potential for woodland is good, but harvesting of timber on the poorly drained soils is usually limited to the drier seasons. Because of wetness and the seasonal high water table, this unit has poor potential for most urban uses.

2. Bude-Providence

Somewhat poorly drained and moderately well drained, level and nearly level, loamy soils; on uplands

These soils are in the south-central part of the county. They are on broad flats and low ridges of the loessial plains. They formed in thin deposits of windblown silts.

This map unit occupies about 3 percent of the county. It is about 80 percent Bude soils, 10 percent Providence soils, and 10 percent minor soils.

Bude soils are somewhat poorly drained and are on the flats and lower parts of ridges. Providence soils are moderately well drained and are on the ridges. Both soils have a silt loam surface layer.

The minor soils in this unit are the moderately well drained Grenada soils on upland hills, the somewhat poorly drained Calloway soils and the poorly drained Henry soils on upland flats, and the somewhat poorly drained Arkabutla soils on flood plains.

This unit is used mainly for woodland, but a few small areas of the better drained soils have been cleared mainly for pasture. Wetness and erosion are the main limitations for farming and most urban uses.

This unit has fair potential for cultivated crops. In most areas tillage operations are commonly delayed several days after a rain because of wetness. This unit has good potential for pasture. Potential for woodland is good, but harvesting of timber on the poorly drained soils is usually limited to the drier seasons. Because of wetness and the seasonal high water table, Bude soils in this unit have poor potential for most urban uses. Providence soils have fair potential for most urban uses.

3. Calhoun

Poorly drained, level, loamy soils; on uplands

These soils are mainly in the central part of the county. They are on broad flats of the loessial plains. They formed in deposits of windblown silts.

This map unit occupies about 3 percent of the county. It is about 80 percent Calhoun soils and 20 percent minor soils.

Calhoun soils are poorly drained and are on the broad flats. They have a silt loam surface layer and a seasonal high water table.

The minor soils in this unit are the moderately well drained Grenada soils on upland hills, the somewhat poorly drained Crowley and Calloway soils and the poorly drained Henry soils on upland flats, and the somewhat poorly drained Arkabutla soils on flood plains.

This unit is used mainly for cultivated crops. Wetness is the main limitation for farming and most urban uses.

This unit has fair potential for cultivated crops. Tillage operations are commonly delayed several days after a rain, and drainage is needed. This unit has a good potential for pasture. Potential is fair for woodland, but harvesting of timber is usually limited to the drier seasons. Because of wetness, the soils in this unit have poor potential for most urban uses.

4. Calloway-Grenada-Henry

Moderately well drained to poorly drained, level to moderately sloping, loamy soils; on uplands

Areas of these soils are mainly in the central part of the county. They are on broad flats and low ridges of the loessial plains. They formed in deposits of windblown silts.

This map unit occupies about 33 percent of the county. It is about 46 percent Calloway soils, 30 percent Grenada soils, 14 percent Henry soils, and 10 percent minor soils.

Calloway soils are somewhat poorly drained and are on the flats and lower parts of ridges. The Grenada soils are moderately well drained and are on the ridges. The poorly drained Henry soils are on the broad flats. All three soils have a silt loam surface layer.

The minor soils in this unit are the moderately well drained Providence soils on upland hills, the somewhat poorly drained Crowley and Bude soils and the poorly drained Calhoun soils on upland flats, and the somewhat poorly drained Arkabutla soils on flood plains.

This unit is used mainly for woodland, but a few areas of the better drained soils are cleared and used for cultivated crops. Wetness and erosion are the main limitations for farming and most other uses.

The less sloping areas of this unit have fair potential for cultivated crops. In most areas tillage operations are commonly delayed several days after a rain because of wetness. This unit has good potential for pasture. Potential is good for woodland, but harvesting of timber on the poorly drained soils is usually limited to the drier seasons. Because of wetness and the seasonal high water

table, the Calloway and Henry soils in this unit have poor potential for most urban uses. Because of wetness and slope the Grenada soils have fair potential for most urban uses.

5. Savannah-Tippah

Moderately well drained, nearly level to gently sloping, loamy soils; on uplands

These soils are mainly in the western part of the county. They are on side slopes and ridges of the Coastal Plain. They formed in beds of loamy and clayey marine sediments.

This map unit occupies about 7 percent of the county. Savannah soils make up about 50 percent of the unit, Tippah soils 20 percent, and minor soils 30 percent.

Savannah soils are moderately well drained and are on the ridges and side slopes. The moderately well drained Tippah soils are on the lower side slopes. Savannah soils have a fine sandy loam surface layer, and Tippah soils have a silt loam surface layer.

The minor soils in this unit are the well drained Smithdale, Pikeville, and Ruston soils and the moderately well drained Sacul soils on uplands hills; the somewhat poorly drained Pheba soils and the poorly drained Amy soils on upland flats; and the well drained Ouachita soils and the poorly drained Guyton soils on flood plains.

This unit is used mainly for woodland, but some small tracts have been cleared for cultivated crops. Erosion is a moderate to severe hazard.

This unit has fair potential for cultivated crops and good potential for pasture and woodland. Because of the high shrink-swell potential and slow permeability, the Tippah soils have poor potential for most urban uses. Because of wetness, Savannah soils have fair potential for most urban uses.

Areas dominated by level soils on bottom lands subject to frequent flooding

Map units 6 through 8 make up about 19 percent of the county. They are on the flood plains of the Ouachita and Saline Rivers and on those of the major streams draining the Coastal Plain and loessial plains. These soils are loamy and are poorly drained, somewhat poorly drained, and well drained. They formed in loamy alluvial deposits.

6. Arkabutla

Somewhat poorly drained, level, loamy soils; on bottom lands

This map unit is along local streams in the central part of the county in the loessial plains. The soils are on frequently flooded bottom lands and formed in loamy alluvial sediments.

This unit occupies about 6 percent of the county. It is about 90 percent Arkabutla soils and 10 percent minor soils.

The somewhat poorly drained Arkabutla soils are on broad flats in the flood plains. They have a silt loam surface layer and a seasonal high water table.

The minor soils in this unit are the moderately well drained Grenada and Providence soils on upland hills and the somewhat poorly drained Callaway and Bude soils and the poorly drained Henry and Calhoun soils on upland flats.

This unit is used mainly for woodland, but a few small areas of the better drained soils have been cleared for pasture. Flooding and wetness are the main limitations for farming and most other uses.

This unit has poor potential for cultivated crops and fair potential for pasture. Potential for woodland is good, but harvesting of timber is usually limited to the drier seasons. Because of flooding and wetness, this unit has poor potential for most urban uses.

7. Guyton

Poorly drained, level, loamy soils; on bottom lands and stream terraces

These soils are along the Saline and Ouachita Rivers in the western part of the county. They are on frequently flooded bottom lands and stream terraces in the Coastal Plain and formed in deep, loamy alluvial sediments.

This map unit occupies about 11 percent of the county. It is about 70 percent Guyton soils and 30 percent minor soils.

The poorly drained Guyton soils are on the broad flats in the flood plains. They have a silt loam surface layer and a seasonal high water table.

The minor soils in this unit are the well drained Ruston soils and the moderately well drained Savannah soils on upland hills, the somewhat poorly drained Pheba soils and the poorly drained Amy and Lafe soils on upland flats, and the excessively drained Crevasse soils and the well drained Spadra and Ouachita soils in higher positions on flood plains.

This unit is used mainly for woodland, but a few small areas of the better drained soils have been cleared mainly for pasture. Flooding and wetness are the main limitations for farming and most other uses.

This unit has poor potential for cultivated crops and fair potential for pasture. Flooding and wetness are the main limitations. Potential for woodland is good, but harvesting of trees is usually limited to the drier seasons. Because of flooding and wetness, this unit has poor potential for most urban uses.

8. Guyton-Ouachita

Poorly drained and well drained, level, loamy soils; on bottom lands and stream terraces

These soils are along the Saline River and local streams in the northwestern part of the county. They are on frequently flooded bottom lands in the Coastal Plain and formed in deep loamy alluvial sediments.

This map unit occupies about 2 percent of the county. It is about 55 percent Guyton soils, 40 percent Ouachita soils, and 5 percent minor soils.

The poorly drained Guyton soils are on the broad flats in the flood plains. The well drained Ouachita soils are on the natural levees in the flood plains. Both soils have a silt loam surface layer, and the Guyton soils have a seasonal high water table.

The minor soils in this unit are the well drained Ruston, Smithdale, and Pikeville soils and the moderately well drained Savannah and Sacul soils on upland hills and the somewhat poorly drained Pheba and Lafe soils and the poorly drained Amy soils on upland flats.

This unit is used mainly for woodland, but a few small areas of the better drained soils have been cleared mainly for pasture. Flooding and wetness are the main limitations for farming and most other uses.

This unit has fair to poor potential for cultivated crops and good potential for pasture. Potential is good for woodland, but harvesting of timber is usually limited to the drier seasons. Because of flooding and wetness, this unit has poor potential for most urban uses.

Areas dominated by level and nearly level soils on bottom lands

Map units 9 and 10 make up about 27 percent of the county. They are on bottom lands of former channels of Bayou Bartholomew. These soils are clayey or loamy and poorly drained, somewhat poorly drained, and well drained. They formed in loamy and clayey alluvial deposits.

9. Perry-Portland

Poorly drained and somewhat poorly drained, level, clayey and loamy soils; on bottom lands

Areas of these soils are in the eastern part of the county. They are on broad flats along Bayou Bartholomew and its former channels. They formed in beds of clayey alluvium.

This map unit occupies about 11 percent of the county. It is about 50 percent Perry soils, 35 percent Portland soils, and 15 percent minor soils.

The poorly drained Perry soils are slightly lower than the somewhat poorly drained Portland soils. Both soils have a seasonal high water table. Perry soils have clay surface texture, and Portland soils have silt loam or silty clay loam surface texture.

The minor soils in this unit are the well drained Rilla soils and the somewhat poorly drained Hebert soils on natural levees, the poorly drained Fluvaquents on frequently flooded areas along Bayou Bartholomew, and the very poorly drained Yorktown soils in low, ponded sloughs and abandoned oxbows.

This unit is used mainly for cultivated crops. Wetness is the main limitation for farming. The water table is within 12 inches of the surface during winter and early spring.

This unit has good potential for rice and fair potential for row crops. Tillage operations are commonly delayed several days after a rain because of excess water, and surface drains are needed. This unit has good potential for pasture. Potential is good for woodland, but harvesting of timber is usually limited to the drier seasons. Because of wetness and shrink-swell potential, this unit has poor potential for most urban uses.

10. Rilla-Hebert

Well drained and somewhat poorly drained, level to undulating, loamy soils; on bottom lands

Areas of these soils are in the eastern part of the county. They are on natural levees along Bayou Bartholomew and its former channels. They formed in beds of silty and loamy alluvium.

This map unit occupies about 16 percent of the county. It is about 45 percent Rilla soils, 30 percent Hebert soils, and 25 percent minor soils.

The well drained Rilla soils are on the higher parts of natural levees, and the somewhat poorly drained Hebert soils are on the lower parts. Both soils have silt loam surface texture.

The minor soils in this unit are the somewhat poorly drained Portland soils and the poorly drained Perry soils on bottom land flats, the poorly drained Fluvaquents on frequently flooded areas along Bayou Bartholomew, and the very poorly drained Yorktown soils in low, ponded sloughs and abandoned oxbows.

This unit is mainly used for cultivated crops. Tillage operations are commonly delayed a few days after a rain where field drains have not been installed.

The soils in this unit have good potential for cultivated crops and pasture. Potential is good for woodland, but wetness is a limitation for managing and harvesting trees. The unit has fair potential for most urban uses. The main limitation is shrink-swell potential.

Broad land use considerations

The map units in the county vary widely in their potential for major land uses. The ratings of soil potential reflect the relative cost of measures to overcome limitations and soil-related problems after such practices have been installed. The ratings do not consider location in relation to existing transportation systems or to other kinds of facilities.

The Rilla-Hebert unit where properly drained has good potential for cultivated farm crops. The Arkabutla and Guyton units have poor potential for cultivated crops

because of flooding and wetness. Most soils in the county have potentials between these extremes.

The potential for pasture is good on most units in the county. However, the Guyton unit has fair potential for pasture because of flooding and wetness.

Most units in the county have good potential for woodland. Some units, such as Amy-Pheba, have equipment use limitations because of wetness. These limitations can usually be overcome by using special equipment and by harvesting trees in the drier seasons.

About 15,000 acres have been developed for urban uses in Ashley County. Most units in the county, however, have limitations that affect urban development. The Perry-Portland unit is limited by shrink-swell potential and wetness. Some units, such as Calhoun and Calloway-Grenada-Henry, are limited by wetness. Many of the limitations for urban development can be overcome by proper engineering design.

Soils information is useful as a guide in planning for orderly growth and development in the county. Soil-related problems can often be avoided by recognizing the soils' potentials and limitations before an area is developed for a particular use.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have profiles that are almost alike make up a *soil series*. Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped. The Amy series, for example, was named for the town of Amy in adjacent Ouachita County.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Sacul fine sandy loam, 1 to 3 percent slopes, is one of several phases within the Sacul series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called undifferentiated groups.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because there is little value in separating them. The pattern and proportion of the soils are not uniform. An area shown on the map has at least one of the dominant (named) soils or may have all of them. Guyton soils, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 6, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

1—Amy silt loam, 0 to 1 percent slopes. This poorly drained, level soil is on broad upland flats on the Coastal Plain. Individual areas range from about 20 to 1,000 acres.

Typically, the surface layer is dark grayish brown silt loam about 3 inches thick. The subsurface layer is light gray, mottled silt loam that extends to a depth of about 12 inches. The subsoil is gray, mottled silty clay loam that extends to about 54 inches. The underlying material is gray, mottled silty clay loam that extends to 72 inches or more.

This soil is low in natural fertility. Available water capacity is high. The soil is strongly acid or very strongly acid throughout. Permeability is slow, and runoff is slow. The water table is seasonally high; it is within 12 inches of the surface during winter and early spring. Crops on this soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Guyton, Pheba, and Savannah soils.

This Amy soil has fair potential for cultivated crops. Adapted cultivated crops include soybeans and small grains. Excess surface water is a limitation. Tillage operations are often delayed several days after a rain unless drainage systems are installed.

This soil has good potential for pasture. Adapted pasture plants include bermudagrass, bahiagrass, tall fescue, and white clover. Wetness during late winter and early spring is a limitation. Livestock traffic severely damages pastures during these wet seasons, and access to supplemental feeding sites is restricted.

Potential is good for loblolly pine and sweetgum. This soil is used mainly for commercial production of these trees. Wetness is a severe limitation to equipment use in managing and harvesting the trees, but this limitation can usually be overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness is a severe limitation for dwellings, roads and streets, and industrial sites. This limitation can be partly overcome by drainage. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This soil is in capability unit IIIw-1 and woodland suitability group 2w9.

2—Arkabutla silt loam, frequently flooded. This somewhat poorly drained, level soil is on flood plains in the loessial plains. It is flooded two or three times each year. Slopes are 0 to 1 percent. Individual areas range from about 20 to 500 acres.

Typically, the surface layer is very dark grayish brown silt loam about 2 inches thick. The next layer is dark brown silt loam that extends to a depth of about 8 inches. The upper part of the subsoil is brown, mottled silty clay loam that extends to about 21 inches. The lower part is light brownish gray, mottled silt loam that extends to about 58 inches. The underlying material is light brownish gray, mottled silt loam that extends to 72 inches or more.

Natural fertility is low. Available water capacity is high. The soil is strongly acid or very strongly acid throughout. Permeability is moderate, and runoff is slow. The water table is seasonally high, and flooding is frequent during late winter and early spring. Crops on this soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Grenada and Guyton soils.

This Arkabutla soil has poor potential for cultivated crops because of the hazard of frequent flooding. This condition can be overcome only by major flood control and by drainage. Adapted cultivated crops include soybeans and grain sorghum. Most of the area, however, is used for woodland and wildlife habitat.

Potential is fair for pasture and hayland. Adapted pasture plants include bermudagrass, bahiagrass, tall fescue, and white clover. The main limitation is wetness and flooding.

Potential is good for loblolly pine, sweetgum, green ash, cottonwood, and cherrybark oak. Wetness and flooding limit the use of equipment in managing and harvesting the trees, but these limitations can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for urban uses. Wetness and flooding are severe limitations for dwellings, roads and streets, industrial sites, and septic tank absorption fields. These limitations can be overcome only by major flood control and drainage.

This Arkabutla soil is in capability unit IVw-1 and woodland suitability group 1w9.

3—Bude silt loam, 0 to 2 percent slopes. This somewhat poorly drained, level to nearly level soil is on the smoother parts of uplands of the loessial plains. Individual areas are about 10 to 1,000 acres.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsurface layer, which extends to a depth of about 10 inches, is brown silt loam. The subsoil above the fragipan is yellowish brown, mottled silt loam that extends to about 32 inches. The upper part of the fragipan is mottled light brownish gray and yellowish brown silt loam that extends to about 37 inches. The next layer, extending to about 45 inches, is mottled gray, pale brown, and yellowish brown silty clay loam that is compact and brittle. The lower part of the fragipan, extending to 72 inches or more, is mottled yellowish brown, pale brown, and light gray silt loam that is compact and brittle.

This soil is moderate in natural fertility. Available water capacity is medium. Soil reaction is medium acid to very strongly acid throughout. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. A seasonal water table is perched above the fragipan in late winter and early spring. The fragipan restricts penetration of roots. Crops on this soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calloway and Providence soils.

This Bude soil has fair to good potential for cultivated crops. Adapted crops include cotton, rice, corn, grain sorghum, and soybeans. Tillage operations are commonly delayed a few days after a rain because of excess water; surface drains are needed.

This soil has good potential for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, and sweetgum. Woodland is the main use. Wetness is the main limitation to equipment use in managing and harvesting the trees, but this limitation is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness and low strength are severe limitations for roads and streets. Wetness is a severe limitation for dwellings and industrial sites. These limitations can be partly overcome by drainage and good engineering design. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Bude soil is in capability unit IIw-1 and woodland suitability group 2w8.

4—Calhoun silt loam, 0 to 1 percent slopes. This poorly drained, level soil is on broad flats and in depressions on uplands of the loessial plains. Areas where these soils occur are locally referred to as "prairies." Individual areas are about 20 to 1,000 acres.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The subsurface layer, which extends to a depth of about 14 inches, is grayish brown, mottled silt loam. The upper part of the subsoil is light brownish gray, mottled silt loam that extends to about 28 inches. The lower part is grayish brown, mottled silt loam that extends to about 50 inches. The underlying material, extending to 72 inches or more, is mottled light brownish gray, brown, and brownish yellow silt loam.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is medium acid through very strongly acid throughout. Permeability is slow. The water table is seasonally high; it is within 12 inches of the surface in late winter and early spring. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calloway, Crowley, Henry, and Grenada soils.

This Calhoun soil has fair potential for cultivated crops, and this is the main use. Adapted crops include cotton, rice, corn, grain sorghum, and soybeans. Tillage operations are delayed several days after a rain because of excess water, and surface drains are needed.

This soil has good potential for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has fair potential for loblolly pine, water oak, and sweetgum. Wetness is a severe limitation to equipment use in managing and harvesting trees, but this limitation is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness is a severe limitation for streets, dwellings, and industrial sites. This limitation can be partially overcome by drainage. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Calhoun soil is in capability unit IIIw-3 and woodland suitability group 4w9.

5—Calloway silt loam, 0 to 1 percent slopes. This somewhat poorly drained, level soil is on the smoother parts of the loessial plains. Individual areas are about 10 to 100 acres.

Typically, the surface layer is dark grayish brown silt loam about 2 inches thick. The subsurface layer is brown, mottled silt loam that extends to a depth of about 10 inches. The upper part of the subsoil is yellowish brown, mottled silt loam that extends to about 25 inches. The lower part is a firm, brittle fragipan of yellowish brown, mottled silt loam that extends to 72 inches or more.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is strongly acid or medium acid throughout. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. A perched water table is above the fragipan during late winter and early spring. The fragipan restricts penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calhoun, Crowley, and Henry soils.

This Calloway soil has fair potential for cultivated crops. Adapted crops include cotton, rice, wheat, corn, grain sorghum, and soybeans. Tillage operations are commonly delayed a few days after a rain because of excess water, and surface drains are needed.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, and water oak. Woodland is the main use. Wetness is the main limitation to equipment use in managing and harvesting trees, but it is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness is a severe limitation for dwellings and industrial sites. Wetness and low strength are severe limitations for streets. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Calloway soil is in capability unit IIw-1 and woodland suitability group 3w8.

6—Calloway silt loam, 1 to 3 percent slopes. This somewhat poorly drained, nearly level soil is on the smoother portions of the loessial plains. Individual areas are about 10 to 30 acres.

Typically, the surface layer is dark grayish brown silt loam about 2 inches thick. The subsurface layer is brown, mottled silt loam that extends to a depth of about 10 inches. The upper part of the subsoil is yellowish brown, mottled silt loam that extends to about 25 inches. The lower part is a firm, brittle fragipan of yellowish brown, mottled silt loam that extends to 72 inches or more.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is strongly acid or medium acid throughout. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. The water

table is perched above the fragipan during late winter and early spring. The fragipan restricts penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calhoun, Crowley, and Henry soils.

This Calloway soil has fair potential for cultivated crops. Adapted crops include wheat, cotton, corn, grain sorghum, and soybeans. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops help reduce runoff and control erosion. Tillage operations are commonly delayed a few days after a rain because of poor internal drainage.

This soil has good potential for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, and water oak. Woodland is the main use. Wetness is the main limitation to equipment use in harvesting trees, but it is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness is a severe limitation for dwelling and industrial sites. Wetness and low strength are moderate limitations for streets. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Calloway soil is in capability unit IIe-2 and woodland suitability group 3w8.

7—Crevasse soils, frequently flooded. This map unit consists of level, excessively drained soils on flood plains of the Ouachita River. Slopes are 0 to 1 percent. The soils are flooded more often than once in 2 years. The unit consists of Crevasse soils with variable surface textures ranging from sandy loam to fine sand. These soils do not occur in a regular pattern. Individual areas are large enough to map separately, but because of present and predicted use, they were not separated in mapping. Although most areas contain Crevasse soils with variable surface textures, a few areas are only Crevasse loamy fine sand. Individual areas range from about 20 to 50 acres.

Typically, the surface layer is dark grayish brown loamy fine sand about 4 inches thick. The next layer is brown loamy sand that extends to a depth of about 16 inches. Below this is light yellowish brown loamy sand that extends to about 30 inches. The next layer is light yellowish brown, mottled loamy sand that extends to about 42 inches. This is underlain with brown sand that extends to 72 inches or more.

These soils are low in natural fertility. Available water capacity is low. Reaction of the surface layer and underlying material ranges from medium acid through neutral. Permeability is rapid, and runoff is slow. These soils are flooded for periods of 30 to 180 days, generally between December and June. Tilth is easy to maintain.

Included with these soils in mapping are small areas of Guyton and Spadra Variant soils.

These Crevasse soils have poor potential for cultivated crops because of the hazard of frequent flooding and because of droughtiness. The flood hazard can be overcome only by major flood control and by drainage.

Potential is poor for pasture and hayland. Adapted pasture plants include bermudagrass. Most areas are used for wildlife habitat.

These soils have good potential for eastern cottonwood and American sycamore. Flooding limits the use of equipment in managing and harvesting trees, but this limitation can be overcome by using special equipment and by logging during drier seasons.

These soils have poor potential for urban uses. Flooding is a severe limitation for dwellings, industrial sites, roads and streets, and septic tank absorption fields. This limitation can be overcome only by major flood control.

These Crevasse soils are in capability unit Vw-3 and woodland suitability group 2s9.

8—Crowley silt loam, 0 to 1 percent slopes. This somewhat poorly drained, level soil is on the broad flats of the loessial plains. Areas where these soils occur are locally referred to as "prairies."

Typically, the surface layer is dark grayish brown silt loam about 10 inches thick. The subsurface layer is grayish brown, mottled silt loam that extends to a depth of about 25 inches. The upper part of the subsoil is grayish brown, mottled silty clay that extends to about 49 inches. The lower part, extending to 72 inches or more, is mottled gray, brown, and yellowish brown silty clay.

This soil is moderate in natural fertility. Available water capacity is high. Reaction ranges from medium acid through very strongly acid in the surface layer and upper part of the subsoil and is slightly acid or medium acid in the lower part. Permeability is very slow. The water table is perched above the clayey subsoil; it is within 1 foot of the surface during late winter and early spring. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calhoun and Henry soils.

This Crowley soil has fair potential for cultivated crops, and this is the main use. Adapted crops include rice, cotton, corn, grain sorghum, wheat, and soybeans. Tillage operations are commonly delayed a few days after a rain because of excess water, and surface drains are needed.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has fair potential for loblolly pine. Wetness limits use of equipment in managing and harvesting trees, but it is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness and shrink-swell potential are severe limiations for dwellings and industrial sites. Low strength and the shrink-swell potential are severe limitations for roads and streets. These limitations can be partially overcome with good engineering designs. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Crowley soil is in capability unit IIIw-3 and woodland suitability group 4w9.

9—Fluvaquents, frequently flooded. This unit consists of somewhat poorly drained and poorly drained soils inside the banks of Bayou Bartholomew. The areas are narrow strips that parallel the stream channel and are subject to frequent flooding. These soils are stratified sediments of variable textures.

The soils that formed in these sites are similar to Hebert and Portland soils. The soils are dry most of the year. Ash, cottonwood, sweetgum, and water oak trees grow in these areas. Some of the wider strips are used for improved pasture or catch crops of soybeans or grain sorghum.

Fluvaquents are in capability unit Vw-2 and woodland suitability group 2w6.

10—Grenada silt loam, 1 to 3 percent slopes. This moderately well drained, nearly level soil is on the smoother parts of the loessial plains. Individual areas are about 10 to 200 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsoil above the fragipan, extending to a depth of about 22 inches, is yellowish brown silt loam. The next layer is light gray, mottled silt loam that extends to about 26 inches. The upper part of the fragipan is brown, mottled silty clay loam that extends to about 37 inches. The lower part, extending to 72 inches or more, is yellowish brown, mottled silt loam.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. The water table is perched above the fragipan during late winter and early spring. The fragipan restricts the penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calloway, Arkabutla, and Henry soils.

This Grenada soil has fair potential for cultivated crops. Adapted crops include cotton, corn, grain sorghum, wheat, and soybeans. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops help reduce runoff and control erosion.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, and southern red oak. Woodland is the main use. There are no significant limitations for woodland use and management.

This soil has fair potential for most urban uses. Low strength is a moderate limitation for roads and streets. Wetness is a limitation for dwellings and industrial sites. Drainage and proper engineering design are needed to overcome these limitations. Slow permeability is a severe limitation for septic tank absorption fields. This limitation is difficult to overcome.

This Grenada soil is in capability unit IIe-2 and woodland suitability group 3o7.

11—Grenada silt loam, 3 to 8 percent slopes. This moderately well drained, gently sloping soil is on the steeper parts of the loessial plains. Individual areas are about 10 to 200 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsoil above the fragipan, extending to a depth of about 22 inches, is yellowish brown silt loam. The next layer is light gray, mottled silt loam that extends to about 26 inches. The upper part of the fragipan is brown, mottled silty clay loam that extends to about 37 inches. The lower part, extending to 72 inches or more, is yellowish brown, mottled silt loam.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. The water table is perched above the fragipan during late winter and early spring. The fragipan restricts the penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Arkabutla, Calloway, and Henry soils.

This Grenada soil has fair potential for cultivated crops. Adapted crops include cotton, corn, grain sorghum, wheat, and soybeans. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops help reduce runoff and control erosion.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, and southern red oak. Woodland is the main use. There are no significant limitations for woodland use and management.

This soil has fair potential for most urban uses. Low strength is a moderate limitation for roads and streets. Wetness is a moderate limitation for dwellings and industrial sites. Drainage and proper engineering design are needed to overcome these limitations. Slow permeability is a severe limitation for septic tank absorption fields. This limitation is difficult to overcome.

This Grenada soil is in capability unit IIIe-2 and woodland suitability group 3o7.

12—Grenada silt loam, 8 to 12 percent slopes. This moderately well drained, moderately sloping soil is on the steeper parts of the loessial plains. Individual areas are about 10 to 200 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsoil above the fragipan, extending to a depth of about 22 inches, is yellowish brown silt loam. The next layer is light gray, mottled silt loam that extends to about 26 inches. The upper part of the fragipan is brown, mottled silty clay loam that extends to about 37 inches. The lower part, extending to 72 inches or more, is yellowish brown, mottled silt loam.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. The water table is perched above the fragipan in late winter and early spring. The fragipan restricts the penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calloway, Arkabutla, and Henry soils.

This Grenada soil has poor potential for cultivated crops. Erosion is a severe hazard if cultivated crops are grown.

This soil has good potential for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, sweetgum, and southern red oak. Woodland is the main use. There are no significant limitations for woodland use and management.

This soil has fair potential for most urban uses. Low strength is a moderate limitation for roads and streets. Wetness and slope are moderate limitations for dwellings. Slope is a severe limitation for industrial sites. These limitations can usually be overcome with proper engineering design. Slow permeability and slope are severe limitations for septic tank absorption fields. These limitations are difficult to overcome.

This soil is in capability unit IVe-2 and woodland suitability group 3o7.

13—Guyton silt loam, 0 to 1 percent slopes. This poorly drained, level soil is on broad flats in the Coastal Plain. Individual areas range from about 20 to 1,000 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The next layer is light brownish gray, mottled silt loam that extends to a depth of about 14 inches. The upper part of the subsoil is dark grayish brown, mottled silty clay loam that extends to about 34 inches. The next part is grayish brown, mottled silty clay loam that extends to about 54 inches. The next part is gray, mottled silty clay loam and clay loam that extend to about 77 inches. The lower part is light brownish gray, mottled clay loam that extends to 80 inches or more.

This soil is low in natural fertility. Available water capacity is high. The surface layer and subsoil are strongly acid or very strongly acid. Permeability and runoff are slow. The water is seasonally high; it is within 12 inches of the surface during winter and early spring. Crops on this soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few spots of Amy, Pheba, and Savannah soils.

This Guyton soil has fair potential for cultivated crops. Adapted cultivated crops include soybeans and small grains. Runoff is slow, and excess surface water is a hazard. Tillage operations are often delayed several days after a rain unless drainage systems are installed.

The soil has good potential for pasture. Adapted pasture plants include bermudagrass, bahiagrass, tall fescue, dallisgrass, annual lespedeza, white clover, and sericea lespedeza. Wetness during late winter and early spring is a hazard. Livestock traffic severely damages pasture during these wet seasons, and access to supplemental feeding sites is restricted.

Potential is good for loblolly pine, green ash, water oak, and sweetgum. Woodland is the main use. Wetness limits use of equipment in managing and harvesting trees, but this limitation can usually be overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness is a severe limitation for dwellings, streets, and industrial sites. This limitation can be partially overcome by drainage. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Guyton soil is in capability unit IIIw-1 and woodland suitability group 2w9.

14—Guyton soils, frequently flooded. This map unit consists of level, poorly drained soils on flood plains of local streams in the Coastal Plain. Slopes are 0 to 1 percent. The soils are flooded two or three times each year. The unit consists of Guyton silt loam and other Guyton soils with variable surface textures. These soils do not occur in a regular pattern. Individual areas are large enough to map separately, but because of present and predicted use, they were not separated in mapping. Although most mapped areas contain Guyton soils with variable surface textures, a few areas are only Guyton silt loam. Individual areas range from about 20 to 500 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The next layer is light brownish gray, mottled silt loam that extends to a depth of about 14 inches. The upper part of the subsoil is dark grayish brown, mottled silty clay loam that extends to

about 34 inches. The next part is grayish brown, mottled silty clay loam that extends to about 54 inches. The next part is gray, mottled silty clay loam and clay loam that extend to about 77 inches. The lower part is light brownish gray, mottled clay loam that extends to 80 inches or more.

These soils are low in natural fertility. Available water capacity is high. The surface layer and subsoil are strongly acid or very strongly acid. Permeability is slow, and runoff is slow. The water table is seasonally high, and flooding is frequent during winter and spring. Tilth is easy to maintain.

Included with these soils in mapping are a few small areas of Ouachita soils. Also included are soils that are similar to Guyton soils except that they are silty clay or clay in the lower part of the subsoil.

These Guyton soils have poor potential for cultivated crops because of wetness and the hazard of frequent flooding. This hazard can be overcome only by major flood control and by drainage. In most years the flooding occurs from January to June. Adapted cultivated crops include soybeans and grain sorghum.

Potential is fair for pasture and hayland. Adapted pasture plants include bermudagrass, bahiagrass, tall fescue, and white clover. The main limitations are wetness and flooding.

These soils have good potential for loblolly pine, sweetgum, green ash, and water oak. Woodland is the main use. Wetness and flooding limit the use of equipment in managing and harvesting the trees, but these limitations can be overcome by using special equipment and by logging during drier seasons.

Potential is poor for urban uses. Wetness and flooding are the main limitations; these can be overcome only by major flood control and drainage.

These Guyton soils are in capability unit Vw-1 and woodland suitability group 2w9.

15—Hebert silt loam, 0 to 1 percent slopes. This somewhat poorly drained, level soil is on the lower parts of old natural levees along Bayou Bartholomew and its former channels. Individual areas range from about 20 to 300 acres.

Typically, the surface layer is brown silt loam about 8 inches thick. The upper part of the subsoil, extending to a depth of about 17 inches, is grayish brown, mottled silt loam. The middle part, extending to about 25 inches, is brown, mottled silty clay loam. The lower part is reddish brown silty clay loam that extends to about 39 inches. The underlying material, extending to 72 inches or more, is reddish brown, mottled silty clay loam.

This soil is high in natural fertility. Available water capacity is high. The surface layer and subsoil range from slightly acid through strongly acid. The underlying material is slightly acid to mildly alkaline. Runoff is slow, and permeability is moderately slow. The water table is within 18 inches of the surface during winter and early spring. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are small areas of Perry, Portland, and Rilla soils.

This Hebert soil has good potential for cultivated crops, and this is the main use. Adapted crops include cotton, soybeans (fig. 1), wheat, grain sorghum, and rice. Excess water is a moderate hazard, and drains are needed. Without surface drains, tillage operations are commonly delayed in spring. Crops on this soil respond well to fertilizer, and tilth is easy to maintain by returning crop residue to the soil.

Potential is good for pasture. Adapted pasture plants include bermudagrass.

This soil has good potential for eastern cottonwood, cherrybark oak, Nuttall oak, and sweetgum. Wetness is a moderate limitation to equipment use in managing and harvesting trees, but this limitation is usually overcome by logging during the drier seasons.

This soil has fair potential for most urban uses. Wetness and slow permeability are severe limitations for septic tank absorption fields. These limitations are difficult to overcome. Wetness and shrink-swell potential are moderate limitations for dwellings and industrial sites. Low strength is a severe limitation for roads and streets. With proper engineering design, these limitations can usually be overcome.

This Hebert soil is in capability unit IIw-2 and woodland suitability group 2w5.

16—Henry silt loam, 0 to 1 percent slopes. This poorly drained, level soil is in depressions and on broad flats of the loessial plains. Individual areas are about 20 to 200 acres.

Typically, the surface layer is dark grayish brown, mottled silt loam about 5 inches thick. The next layer, extending to a depth of about 24 inches, is light brownish gray, mottled silt loam. The upper part of the subsoil, extending to about 47 inches, is a fragipan of light brownish gray, mottled silt loam and silty clay loam that is compact and brittle. The lower part, extending to 72 inches or more, is mottled, light brownish gray silt loam.

This soil is moderate in natural fertility. Available water capacity is high. Reaction is medium acid or strongly acid in the upper part of the solum and strongly acid to neutral in the lower part. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. The soil is saturated with water in winter and spring and is droughty in summer. The fragipan restricts the movement of water and the penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Calhoun, Calloway, Crowley, and Grenada soils.

This soil has fair potential for cultivated crops. Adapted crops include rice, grain sorghum, corn, and soybeans. Tillage operations are delayed several days after a rain because of excess water, and surface drains are needed.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, water oak, and sweetgum. Wetness is a severe limitation to equipment use in managing and harvesting trees, but this limitation is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness is a severe limitation for dwellings and industrial sites. Low strength is a severe limitation for streets and industrial sites. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Henry soil is in capability unit IIIw-3 and woodland suitability group 3w9.

17—Lafe silt loam, 0 to 1 percent slopes. This somewhat poorly drained, level soil is on upland flats in areas of low relief on the Coastal Plain. Individual areas range from about 20 to 80 acres.

Typically, the surface layer is grayish brown silt loam about 8 inches thick. The upper part of the subsoil is brown, mottled silt loam that extends to a depth of about 17 inches. The lower part is gray, mottled silty clay loam that extends to about 49 inches. The underlying material is light gray, mottled silty clay loam that extends to 72 inches or more.

This soil is low in natural fertility. Available water capacity is low. Reaction ranges from strongly acid through slightly acid in the surface layer, ranges from mildly alkaline through moderately alkaline in the upper part of the subsoil, and is moderately alkaline or strongly alkaline in the lower part and in the underlying material. Permeability is very slow. The water table is seasonally high; it is within 12 inches of the surface during winter and early spring.

Included with this soil in mapping are few small areas of Amy soils.

Most of this Lafe soil is idle. Because of the high sodium content, growing crops, pasture, or trees is not economically feasible. Also, water quality is poor in reservoirs because silt remains suspended in the water.

This soil has poor potential for most urban uses. Wetness and low strength are severe limitations for roads and streets. Wetness is a severe limitation for dwellings and industrial sites. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

Figure 1.—Soybeans on Hebert silt loam, 0 to 1 percent slopes. This soil is one of the best for soybean production in the county.

This soil is in capability unit VIs-1. It is not assigned to a woodland suitability group.

18—Ouachita silt loam, frequently flooded. This well drained, level soil is on flood plains of local streams in the Coastal Plain. It is flooded two or three times each year. Individual areas range from about 40 to 500 acres.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The next layer is dark yellowish brown silt loam that extends to a depth of about 20 inches. The upper part of the subsoil is yellowish brown silt loam that extends to about 33 inches. The lower part is yellowish brown, mottled loam that extends to about 68 inches. The underlying material is yellowish brown, mottled fine sandy loam extending to 76 inches or more.

This soil is high in natural fertility. Available water capacity is high. This soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Runoff is slow, and permeability is moderately slow. Crops on this soil respond well to fertilizer, and tilth is easy to maintain.

Included with these soils in mapping are small areas of Guyton, Savannah, and Smithdale soils.

This Ouachita soil has poor potential for cultivated crops because of frequent flooding. In most years the flooding occurs from December to May. This limitation can be overcome only by major flood control. Most of the area is used for pasture, woodland, and wildlife habitat.

Potential is good for pasture and hayland. Adapted pasture plants include bermudagrass, bahiagrass, tall fescue, and white clover. The main limitation is flooding.

This soil has good potential for loblolly pine, sweetgum, and cottonwood. Flooding limits use of equipment in managing and harvesting trees, but this can be overcome by logging during the drier seasons.

This soil has poor potential for urban uses. Flooding is a severe limitation for dwellings, light industry, and local roads and streets. Moderately slow permeability and flooding are severe limitations for septic tank absorption fields. These limitations can be overcome by major flood control.

This Ouachita soil is in capability unit IVw-1 and woodland suitability group 1w8.

19—Perry clay, 0 to 1 percent slopes. This level, poorly drained soil is on broad flats along Bayou Bartholomew and its former channels. Individual areas range from about 20 to 3,000 acres.

Typically, the surface layer is dark grayish brown clay about 6 inches thick. The upper part of the subsoil, extending to a depth of about 24 inches, is gray, mottled clay. The lower part, extending to about 43 inches, is reddish brown, mottled clay. The underlying material, extending to 72 inches or more, is reddish brown, mottled clay.

This soil is high in natural fertility. Available water capacity is high. Reaction is strongly acid or medium acid in the surface layer and upper part of the subsoil and neutral to moderately alkaline in the lower part and underlying material. Permeability is very slow. When dry, this soil shrinks and cracks (fig. 2); when wet, the soil expands and the cracks seal. The water table is seasonally high; it is within 12 inches of the surface during winter and spring. Crops on the soil respond well to fertilizer. Preparing a seedbed and maintaining tilth are difficult.

Included with this soil in mapping are spots of Hebert, Portland, and Rilla soils. Also included are areas that are subject to frequent flooding.

This Perry soil has good potential for rice and fair potential for row crops and small grains. Cropland is the main use. Adapted crops include rice, cotton, grain sor-

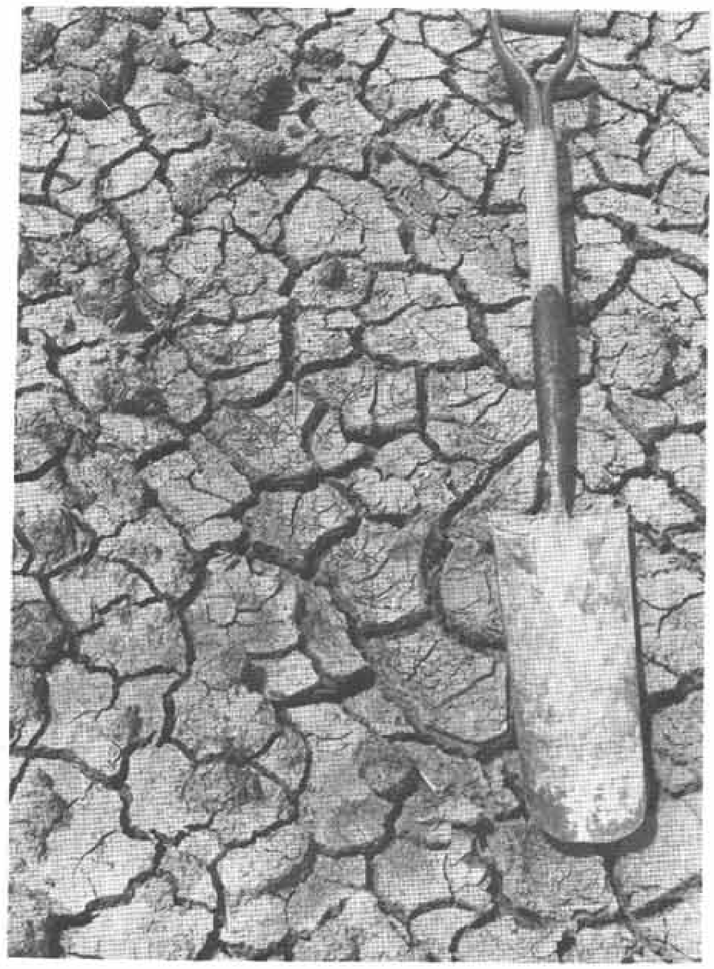


Figure 2.—Shrinking and cracking of Perry clay, 0 to 1 percent slopes.

ghum, wheat, and soybeans. Excess water is a severe hazard. Tillage operations commonly have to be delayed for several days after a rain, and surface drains are needed. This soil can be tilled within only a narrow moisture range.

Potential is good for pasture. Adapted pasture plants include bermudagrass and tall fescue. Wetness is the main limitation.

This soil has good potential for sweetgum and water oak and fair potential for eastern cottonwood and pecan. Wetness is a severe limitation to equipment use in managing and harvesting trees, but it is usually overcome by logging during the dry seasons.

This soil has poor potential for most urban uses. Wetness, shrink-swell potential, and low strength are severe limitations for streets and roads. Wetness and shrink-swell potential are severe limitations for dwellings and industrial sites. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Perry soil is in capability unit IIIw-4 and woodland suitability group 2w6.

20—Pheba silt loam, 0 to 2 percent slopes. This somewhat poorly drained, level to nearly level soil is on upland flats of the Coastal Plain. Individual areas are about 10 to 40 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The next layer is pale brown silt loam that extends to a depth of about 8 inches. The upper part of the subsoil is light yellowish brown, mottled silt loam that extends to about 22 inches. The next layer is light brownish gray, mottled silt loam that extends to about 28 inches. The lower part is a compact, brittle fragipan of yellowish brown, mottled silt loam that extends to 72 inches or more.

This soil is moderate in natural fertility. Available water capacity is medium. The soil is strongly acid or very strongly acid throughout. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. A seasonal water table is perched above the fragipan during periods of high rainfall. The fragipan restricts water movement and root penetration. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Amy, Guyton, and Savannah soils.

Figure 3.—Bahiagrass pasture on Pheba silt loam, 0 to 2 percent slopes.

This Pheba soil has fair potential for cultivated crops. Adapted crops include soybeans, cotton, corn, and grain sorghum. Tillage operations are commonly delayed a few days after a rain because of excess water, and surface drains are needed.

This soil has good potential for pasture (fig. 3). Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue. Wetness during late winter and early spring is a hazard. Livestock traffic damages pastures during these wet seasons, and access to supplemental feeding sites is restricted.

This soil has good potential for loblolly pine and sweetgum; woodland is the main use. Wetness is a moderate limitation to equipment use in managing and harvesting trees, but this limitation is usually overcome by logging during the drier seasons.

This soil has poor potential for most urban uses. Wetness and low strength are moderate limitations for local roads and streets. Wetness is a severe limitation for dwellings and industrial sites. These limitations can be partially overcome by proper engineering design. Slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Pheba soil is in capability unit IIIw-2 and woodland suitability group 2w8.

21—Pikeville fine sandy loam, 3 to 8 percent slopes. This well drained, gently sloping soil is on uplands of the Coastal Plain. Individual areas are about 20 to 30 acres.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The next layer is brown fine sandy loam that extends to a depth of about 15 inches. The upper part of the subsoil, extending to about 28 inches, is yellowish red loam. The middle part, extending to about 48 inches, is yellowish red gravelly loam. The lower part, extending to 80 inches or more, is yellowish red very gravelly sandy loam.

This soil is moderate in natural fertility. Available water capacity is low. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate, and runoff is medium. Crops on this soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Savannah, Smithdale, Ruston, and Sacul soils. Also included are small areas of soils that have slopes of less than 3 percent or of more than 8 percent.

This Pikeville soil has fair potential for cultivated crops. Adapted crops include cotton, soybeans, corn, small grain, and truck crops. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine. Woodland is the main use. There are no significant limitations for woodland management.

This soil has good potential for most urban uses. Limitations are slight for dwellings and septic tank absorption fields. Slope is a moderate limitation for industrial sites. Low strength is a moderate limitation for local roads and streets. These limitations can be easily overcome.

This Pikeville soil is in capability unit IIIe-4 and woodland suitability group 3o1.

22—Portland silt loam, 0 to 1 percent slopes. This level, somewhat poorly drained soil is on broad flats along Bayou Bartholomew and its former channels. Individual areas range from about 20 to 1,000 acres.

Typically, the surface layer, about 6 inches thick, is dark brown silt loam. The subsoil, extending to a depth of about 45 inches, is reddish brown, mottled clay. The underlying material, extending to 72 inches or more, is alternating layers of reddish brown silty clay and dark brown silt loam.

This soil is high in natural fertility. Available water capacity is high. Reaction is strongly acid or very strongly acid in the upper 16 to 26 inches and slightly acid to moderately alkaline below. Permeability is very slow. When dry, this soil shrinks and cracks; when wet, the soil expands and the cracks seal. The water table is seasonally high; it is within 12 inches of the surface during winter and early spring. Crops on the soil respond well to fertilizer. Preparing a seedbed and maintaining tilth are difficult.

Included with this soil in mapping are a few small areas of Perry, Hebert, and Rilla soils. Also included are small areas of soils that have a clay surface layer.

This Portland soil has good potential for rice and fair potential for row crops and small grains and is used mainly for crops. Adapted crops include soybeans, rice, small grain, and grain sorghum. Excess water is a severe hazard. This soil can be cultivated within only a narrow moisture range. Tillage operations commonly have to be delayed for several days after a rain, and surface drains are needed.

Potential is good for pasture. Adapted pasture plants include bermudagrass and tall fescue.

This soil has good potential for green ash and sweetgum. Wetness is a severe limitation to equipment use in managing and harvesting trees, but it is usually overcome by logging during the dry seasons.

This soil has poor potential for most urban uses. Wetness, shrink-swell potential, and low strength are severe limitations for roads and streets. Wetness and shrink-swell potential are severe limitations for dwellings and industrial sites. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Portland soil is in capability unit IIIw-5 and woodland suitability group 2w6.

23—Portland silty clay, 0 to 1 percent slopes. This level, somewhat poorly drained soil is on broad flats along Bayou Bartholomew and its former channels. Individual areas range from about 20 to 1,000 acres.

Typically, the surface layer is dark grayish brown silty clay about 3 inches thick. The next layer, extending to a depth of about 8 inches, is dark brown clay. The subsoil, extending to about 45 inches, is reddish brown, mottled clay. The underlying material, extending to 72 inches or more, is alternating layers of reddish brown silty clay and dark brown silt loam.

This soil is high in natural fertility. Available water capacity is high. Reaction is strongly acid or very strongly acid in the upper 16 to 26 inches and slightly acid to moderately alkaline below. Permeability is very slow. When dry, this soil shrinks and cracks; when wet, the soil expands and the cracks seal. The water table is seasonally high; it is within 12 inches of the surface during winter and early spring. Crops on the soil respond well to fertilizer. Preparing a seedbed and maintaining tilth are difficult.

Included with this soil in mapping are spots of Perry, Hebert, and Rilla soils. Also included are small areas of soils that have a silt loam surface layer and small areas of soils that are subject to frequent flooding.

This Portland soil has good potential for rice and fair potential for row crops and small grain, and is used mainly for crops. Adapted crops include soybeans and rice. Excess water is a severe hazard. This soil can be cultivated only within a narrow moisture range. Tillage operations commonly have to be delayed for several days after a rain, and surface drains are needed.

Potential is good for pasture. Adapted pasture plants include bermudagrass and tall fescue.

This soil has good potential for green ash and sweetgum. Wetness is a severe limitation to equipment use in managing and harvesting trees, but it is usually overcome by logging during the dry seasons.

This soil has poor potential for most urban uses. Wetness, shrink-swell potential, and low strength are severe limitations for roads and streets. Wetness and shrink-swell potential are severe limitations for dwellings and industrial sites. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Portland soil is in capability unit IIIw-4 and woodland suitability group 2w6.

24—Providence silt loam, 1 to 3 percent slopes. This moderately well drained, nearly level soil is on uplands of the loessial plains. Individual areas are about 10 to 200 acres.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The next layer is yellowish brown silt loam that extends to a depth of about 10 inches. The upper part of the subsoil, extending to 16 inches, is yellowish brown silt loam. The next part is strong brown silt loam that extends to about 30 inches. The next part is a firm, brittle fragipan of yellowish brown, mottled silt loam and loam that extends to 72 inches or more.

This soil is moderate in natural fertility. Available water capacity is medium. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The water table is perched above the fragipan during periods of high rainfall. The fragipan restricts movement of water and penetration of roots. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few intermingled areas of Bude, Calloway, and Grenada soils.

This Providence soil has fair potential for cultivated crops. Adapted crops include cotton, soybeans, corn, and grain sorghum. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops help reduce runoff and control erosion.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, cherrybark oak, and sweetgum. Woodland is the main use. There are no significant limitations to woodland management.

This soil has fair potential for most urban uses. Low strength is a severe limitation for roads and streets. Wetness and shrink-swell potential are moderate limitations for dwellings and industrial sites. With proper engineering design, this limitation can be easily overcome. Moderately slow permeability is a severe limitation for septic tank absorption fields. This limitation is difficult to overcome.

This Providence soil is in capability unit IIe-2 and woodland suitability group 3o7.

25—Rilla silt loam, 0 to 1 percent slopes. This well drained, level soil is on natural levees along Bayou Bartholomew and its former channels. Individual areas range from about 20 to 300 acres.

Typically, the surface layer is brown silt loam about 6 inches thick. The upper part of the subsoil is yellowish red silty clay loam that extends to a depth of about 18 inches. The lower part, extending to about 41 inches, is yellowish red silt loam. The underlying material, extending to 72 inches or more, is reddish brown loam.

This soil has high natural fertility. Available water capacity is high. Reaction ranges from slightly acid through strongly acid in the surface layer, is strongly acid or very strongly acid in the subsoil, and ranges from very strongly acid to neutral in the underlying material. Permeability is moderate, and runoff is slow. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are areas of soils that have a fine sandy loam surface layer and a few small areas of Hebert, Perry, Portland, and Yorktown

Figure 4.—A good stand of cotton on Rilla silt loam, 0 to 1 percent slopes.

soils. Also included are small areas of soils that have clayey layers below a depth of 36 inches.

This Rilla soil has good potential for cultivated crops, and this is the main use. Adapted crops include cotton (fig. 4), soybeans, grain sorghum, winter small grain, and corn. This soil warms up early in spring and can be tilled early. It can be cultivated over a wide moisture range.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for eastern cottonwood, American sycamore, cherrybark oak, and sweetgum. There are no significant limitations for woodland use or management.

This soil has fair potential for most urban uses. Low strength is a moderate limitation for roads and streets. Shrink-swell potential is a moderate limitation for dwellings and industrial sites. Moderate permeability and wetness are moderate limitations for septic tank absorption fields. With proper engineering design, these limitations can be overcome.

This Rilla soil is in capability unit I-1 and woodland suitability group 2o4.

26—Rilla silt loam, undulating. This well drained, undulating soil is on ridges and swales along Bayou Bartholomew and its former channels. Individual areas range from about 20 to 100 acres. Slopes are 0 to 3 percent.

Typically, the surface layer is brown silt loam about 6 inches thick. The upper part of the subsoil, extending to a depth of about 18 inches, is yellowish red silty clay loam. The lower part, extending to about 41 inches, is yellowish red silt loam. The underlying material, extending to 72 inches or more, is reddish brown loam.

This soil has high natural fertility. Available water capacity is high. Reaction ranges from slightly acid through strongly acid in the surface layer, is strongly acid or very strongly acid in the subsoil, and ranges from very strongly acid to neutral in the underlying material. Permeability is moderate, and runoff is slow. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are small areas of soils that have slopes of more than 3 percent and spots of Hebert, Perry, Portland, and Yorktown soils. Also included are small areas of soils that have clayey layers below a depth of 36 inches.

This Rilla soil has good potential for cultivated crops, and this is the main use. Adapted crops include cotton, soybeans, grain sorghum, winter small grain, and corn.

This soil warms early in the spring and can be tilled early. It can be cultivated over a wide moisture range. The short side slopes of ridges are susceptible to erosion.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for eastern cottonwood, American sycamore, cherrybark oak, and sweetgum. There are no significant limitations for woodland use or management.

This soil has fair potential for most urban uses. Low strength is a moderate limitation for roads and streets. Shrink-swell potential is a limitation for dwellings and industrial sites. Moderate permeability and wetness are moderate limitations for septic tank absorption fields. With proper engineering design, these limitations can be overcome.

This Rilla soil is in capability unit IIe-4 and woodland suitability group 2o4.

27—Ruston fine sandy loam, 1 to 3 percent slopes. This well drained, nearly level soil is on uplands of the Coastal Plain. Individual areas are about 10 to 60 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer is brown fine sandy loam that extends to a depth of about 9 inches. The upper part of the subsoil is red sandy clay loam that extends to about 46 inches. The next part is red fine sandy loam that extends to about 55 inches. The lower part is red sandy clay loam that extends to 80 inches or more.

This soil is moderate to low in natural fertility. Available water capacity is high. Reaction is medium acid or very strongly acid in the surface layer and strongly acid or very strongly acid in the subsoil. Permeability is moderate, and runoff is medium. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Sacul, Savannah, and Smithdale soils. Also included are small areas of soils that have slopes of more than 3 percent.

This Ruston soil has good potential for cultivated crops. Adapted crops include soybeans, truck crops, corn, cotton, and small grains. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine. Woodland is the main use. There are no significant limitations for woodland use or management.

This soil has good potential for most urban uses. Limitations are slight for septic tank absorption fields, dwellings, and industrial sites. Low strength is a moderate limitation for roads and streets. This limitation is easily overcome.

This Ruston soil is in capability unit IIe-1 and woodland suitability group 3o1.

28—Ruston fine sandy loam, 3 to 8 percent slopes. This well drained, gently sloping soil is on uplands of the Coastal Plain. Individual areas are about 10 to 40 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer is brown fine sandy loam that extends to a depth of about 9 inches. The upper part of the subsoil is red sandy clay loam that extends to about 46 inches. The next part is red fine sandy loam that extends to about 55 inches. The lower part is red sandy clay loam that extends to 80 inches or more.

This soil is moderate to low in natural fertility. Available water capacity is high. Reaction is medium acid or strongly acid in the surface layer and strongly acid or very strongly acid in the subsoil. Permeability is moderate, and runoff is rapid. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Sacul, Savannah, and Smithdale soils. Also included are small areas of soils that have slopes of less than 3 percent.

This Ruston soil has fair potential for cultivated crops. Adapted crops include soybeans, truck crops, corn, cotton, and small grains. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine. Woodland is the main use. There are no significant limitations for woodland use or management.

This soil has good potential for most urban uses. Limitations are slight for septic tank absorption fields and dwellings. Slope is a moderate limitation for light industry. Low strength is a moderate limitation for roads and streets. These limitations can be easily overcome.

This Ruston soil is in capability unit IIIe-1 and woodland suitability group 3o1.

29—Sacul fine sandy loam, 1 to 3 percent slopes. This moderately well drained, nearly level soil is on the smoother uplands of the Coastal Plain. Individual areas are about 10 to 40 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The next layer is pale brown fine sandy loam that extends to a depth of about 7 inches. The upper part of the subsoil is red clay that extends to about 19 inches. The middle part is red, mottled clay that extends to about 26 inches. The lower part is mottled light brownish gray, red, and reddish brown clay and clay loam that extends to about 54

inches. The underlying material is light brownish gray, mottled clay loam with strata of brown silt loam. It extends to 72 inches or more.

This soil is low in natural fertility. Available water capacity is high. Soil reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and runoff is medium. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Ruston, Savannah, Smithdale, and Tippah soils. Also included are small areas of soils that have slopes of more than 3 percent.

This Sacul soil has fair potential for cultivated crops. Adapted crops include soybeans, corn, and small grain. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, the use of cover crops—including grasses and legumes—and contour farming help to reduce runoff and control erosion. Tillage operations are commonly delayed a few days after a rain because of poor internal drainage.

Potential is fair for pasture. Adapted pasture plants include bermudagrass and bahiagrass.

This soil has good potential for loblolly pine. Woodland is the main use. Erosion is the main limitation for woodland management.

This soil has poor potential for most urban uses. Low strength and shrink-swell potential are severe limitations for roads and streets. Shrink-swell potential is a severe limitation for dwellings and industrial sites. Slow permeability is a severe limitation for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Sacul soil is in capability unit IIIe-3 and woodland suitability group 3c2.

30—Savannah fine sandy loam, 1 to 3 percent slopes. This moderately well drained, nearly level soil is on the smoother parts of the Coastal Plain. Individual areas are about 10 to 300 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 3 inches thick. The next layer is pale brown fine sandy loam that extends to a depth of about 9 inches. The upper part of the subsoil is yellowish brown loam that extends to about 24 inches. Below is a compact and brittle fragipan. The upper part of the fragipan is yellowish brown, mottled loam that extends to about 35 inches. The middle part, to about 46 inches, is mottled grayish brown, yellowish brown, and strong brown loam. The lower part of the fragipan is mottled reddish brown, strong brown, and yellowish brown sandy loam that extends to about 59 inches. The lower part of the subsoil is mottled yellowish brown, gray, and brown sandy loam that extends to 72 inches or more.

This soil is low in natural fertility. Available water capacity is medium, and runoff is medium. Reaction ranges from strongly acid through extremely acid throughout. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Amy, Guyton, Pheba, Ruston, and Tippah soils.

This Savannah soil has fair potential for cultivated crops. Adapted crops include truck crops, soybeans, cotton, corn, and small grains. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, the use of cover crops, including grasses and legumes, and contour farming help reduce runoff and control erosion.

Potential for pasture is good. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, sweetgum, and sycamore. Woodland is the main use. There are no significant limitations for woodland use or management.

This soil has fair potential for most urban uses. Wetness is a moderate limitation for dwellings and industrial sites. Low strength and wetness are moderate limitations for roads and streets. With proper engineering design, these limitations can be easily overcome. Moderately slow permeability is a severe limitation for septic tank absorption fields. This limitation is difficult to overcome.

This Savannah soil is in capability unit IIe-1 and woodland suitability group 3o7.

31—Savannah fine sandy loam, 3 to 8 percent slopes. This moderately well drained, gently sloping soil is on uplands of the Coastal Plain. Individual areas are about 20 to 400 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The next layer is pale brown fine sandy loam that extends to a depth of about 9 inches. The upper part of the subsoil is yellowish brown loam that extends to about 24 inches. Below is a compact and brittle fragipan. The upper part of the fragipan is yellowish brown, mottled loam that extends to about 35 inches. The middle part is mottled grayish brown, yellowish brown, and strong brown loam that extends to about 46 inches. The lower part of the fragipan is mottled reddish brown, strong brown, and yellowish brown sandy loam that extends to about 59 inches. The lower part of the subsoil is mottled yellowish brown and gray sandy loam that extends to 72 inches or more.

This soil is low in natural fertility. Available water capacity is medium, and runoff is medium. Reaction ranges from strongly acid to extremely acid throughout. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Pheba, Pikeville, Ruston, Smithdale, and Tippah soils.

This Savannah soil has fair potential for cultivated crops. Adapted crops include truck crops, soybeans, cotton, corn, and small grains. Erosion is a severe

hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine, sweetgum, and sycamore. Woodland is the main use. There are no significant limitations for woodland use or management.

This soil has fair potential for most urban uses. Wetness is a moderate limitation for dwellings. Wetness and slope are moderate limitations for industrial sites. Low strength and wetness are moderate limitations for roads and streets. With proper engineering design, these limitations can be easily overcome. Moderately slow permeability is a severe limitation for septic tank absorption fields. This limitation is difficult to overcome.

This Savannah soil is in capability unit IIIe-1 and woodland suitability group 3o7.

32—Smithdale fine sandy loam, 8 to 12 percent slopes. This well drained, moderately sloping soil is on the steeper uplands of the Coastal Plain. Individual areas are about 20 to 500 acres.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The upper part of the subsoil is yellowish red fine sandy loam that extends to a depth of about 13 inches. The next part is red sandy clay loam that extends to about 32 inches. The lower part is red sandy loam that contains pockets of clean sand grains and that extends to 80 inches or more.

This soil is low in natural fertility. Available water capacity is high, and runoff is medium. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and runoff is medium. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Pikeville, Savannah, and Sacul soils. Also included are small areas of soils that have slopes of less than 8 percent.

This Smithdale soil has poor potential for cultivated crops. Adapted crops include truck crops, cotton, soybeans, corn, and small grains. Erosion is a very severe hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

Potential is good for pasture. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine. Woodland is the main use. There are no significant limitations for woodland use or management.

This soil has fair potential for most urban uses. Slope is a moderate limitation for dwellings, roads and streets, and septic tank absorption fields. This limitation is easily overcome. Slope is a severe limitation for industrial sites. This limitation is difficult to overcome.

This Smithdale soil is in capability unit IVe-1 and woodland suitability group 3o1.

33—Spadra Variant fine sandy loam, occasionally flooded. This well drained, nearly level soil is on low stream terraces along the Ouachita and Saline River bottom lands. Slopes are 1 to 3 percent. The soil is flooded once every 2 to 4 years. Individual areas range from about 20 to 80 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The next layer is brown fine sandy loam that extends to a depth of about 10 inches. The upper part of the subsoil is dark brown loam that extends to about 31 inches. The lower part is yellowish brown fine sandy loam that extends to about 47 inches. The underlying material is light yellowish brown loamy fine sandy that extends to 72 inches or more.

This soil is high in natural fertility. Available water capacity is high. Reaction is strongly acid or very strongly acid throughout. Runoff is slow, and permeability is moderate. Flooding is a moderate hazard on this soil. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are small areas of Crevasse and Guyton soils.

This Spadra soil has poor potential for cultivated crops because of the hazard of occasional flooding. Flooding occurs once every 2 to 4 years during December to June. Most of the area is used for woodland and wildlife.

Potential is good for pasture. Adapted pasture plants include bermudagrass and tall fescue.

This soil has good potential for loblolly pine and sweetgum. Flooding limits the use of equipment in managing and harvesting trees, but this can be overcome by logging during the drier seasons.

This soil has poor potential for urban uses. Flooding is a severe limitation and can be overcome only by major flood control.

This Spadra soil is in capability unit IIw-3 and woodland suitability group 2o7.

34—Tippah silt loam, 1 to 3 percent slopes. This moderately well drained, nearly level soil is on the smoother parts of the Coastal Plain. Individual areas are about 10 to 80 acres.

Typically, the surface layer is dark grayish brown silt loam about 6 inches thick. The upper part of the subsoil is strong brown silty clay loam that extends to a depth of about 26 inches. The middle part is red, mottled clay that extends to about 46 inches. The lower part is mottled gray, strong brown, and yellowish red clay that extends to 72 inches or more.

This soil is low in natural fertility. Available water capacity is high. Reaction is medium acid through very strongly acid throughout. Permeability is slow, and runoff

is medium. Crops on the soil respond well to fertilizer, and tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Pheba, Sacul, and Savannah soils.

This Tippah soil has fair potential for cultivated crops. Adapted crops include truck crops, soybeans, cotton, corn, and small grains. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes; and contour farming help reduce runoff and control erosion.

Potential for pasture is good. Adapted pasture plants include bermudagrass, bahiagrass, and tall fescue.

This soil has good potential for loblolly pine. Woodland is the main use. There are no significant limitations for woodland use or management.

This soil has poor potential for most urban uses. Low strength is a severe limitation for roads and streets. Shrink-swell potential is a moderate limitation for dwellings and industrial sites. Slow permeability is a severe limitation for septic tank absorption fields. These limitations are difficult or impractical to overcome.

This Tippah soil is in capability unit IIe-3 and woodland suitability group 3o7.

35—Yorktown silty clay. This level, very poorly drained soil is in low, ponded sloughs and abandoned oxbows of Bayou Bartholomew. Slopes are 0 to 1 percent. Individual areas range from about 50 to 300 acres.

Typically, the surface layer is gray silty clay about 7 inches thick. The upper part of the subsoil, extending to a depth of about 22 inches, is gray, mottled clay. The next part, extending to about 37 inches, is dark gray, mottled clay. The next part is greenish gray, mottled clay that extends to about 44 inches. The lower part, extending to 60 inches or more, is reddish brown, mottled clay.

This soil is high in natural fertility. Available water capacity is high. Reaction is medium acid to neutral in the surface layer and upper part of the subsoil and mildly alkaline or moderately alkaline in the lower part. Permeability is very slow. These soils are ponded with as much as 5 feet of water for at least 10 months during most years.

Included with this soil in mapping are spots of Perry soils.

This Yorktown soil is unsuitable for cultivated crops because of the duration of flooding and ponding. These soils are used only for wildlife habitat, and occasionally during an extended dry period, timber can be harvested.

This soil has fair potential for baldcypress and water tupelo. The duration of flooding and ponding is a severe limitation to the use of equipment in managing and harvesting trees.

This soil is not suited for urban uses. Flooding, ponding, and shrink-swell potential are severe limitations; these are impractical to overcome.

This Yorktown soil is in capability unit VIIw-1 and woodland suitability group 4w9.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, and woodland; as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities; and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

W. Wilson Ferguson, conservation agronomist, Soil Conservation Service, helped prepare this section.

The major management concerns in the use of the soils for crops and pasture are described in this section.

In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 133,000 acres in Ashley County were used for crops and pasture according to the 1974 Census of Agriculture. Of this acreage 106,047 were harvested cropland. (See table 1 for principal crops harvested.)

The potential of the soils in Ashley County for increased production of food is good. Food production could be increased considerbly by extending the latest crop production technology to all cropland in the county. This soil survey can greatly help in the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development and other purposes. The use of this soil survey to help make land use decisions that will influence the future of farming in the county is discussed in the section "General soil map for broad land use planning."

Crops.—Erosion control is needed on sloping soils that are used for clean-tilled crops. Such control includes contour cultivation, terraces, or grassed waterways, or combinations of these. Also, this includes leaving a good mulch from harvested crops on the surface as long as possible before planting and using as little weed control tillage as necessary.

Annual cover crops or grasses and legumes should be grown regularly if the erosion hazard is severe or if the crops grown leave only small amounts of residue. Row arrangement and suitable surface drainage are needed for dependable growth on wet areas. Many areas that are subject to frequent flooding are unsuited, or only marginally suited, to most crops commonly grown in the county.

A plowpan commonly develops in loamy soils that are improperly tilled or are tilled frequently with heavy equipment. Keeping tillage to a minimum, varying the depth of tillage, and tilling when soil moisture content is favorable help prevent formation of a plowpan. Growing deep-rooted grasses and legumes help break up the plowpan.

If left bare, many soils tend to puddle, pack, and crust during periods of heavy rainfall. Growing cover crops and managing crop residue help preserve or improve tilth.

Pasture.—Perennial grasses or legumes, or mixtures of these, are grown for pasture and hay. The mixtures generally consist of either a summer or a winter perennial grass and a suitable legume.

Coastal bermudagrass, common bermudagrass, dallisgrass, and Pensacola bahiagrass are the summer perennials most commonly grown. Coastal bermudagrass and Pensacola bahiagrass produce good quality forage. Tall fescue, the chief winter perennial grass now grown in the county, grows well only on soils that have favorable soil-moisture content. All of these grasses respond well to fertilizer, particularly to nitrogen. White clover, crimson clover, annual lespedeza, and sericea lespedeza are the most commonly grown legumes.

Proper grazing is essential for high quality forage, stand survival, and erosion control. Brush and weed control, fertilization, and renovation of the pasture are also important.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 7. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 7.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. It should provide drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage, control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils for each of the principal crops. Yields are likely to increase as new production technology is applied. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 7 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management and productivity of the soils.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forest trees or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The capability unit is identified in the description of each soil map unit in the section "Soil maps for detailed planning." Capability units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-1 or IIIe-2.

Woodland management and productivity

Paul I. Brown, forester, Soil Conservation Service, helped prepare this section.

Except for scattered prairies in the central part of the county, Ashley County was originally covered with forests. Trees now cover about 69 percent, or 410,400 acres, of the county (*7*). Most of this forest is in the uplands of the western two-thirds of the county.

Excellent stands of commercial trees grow in the county. The needleleaf tree species dominate the uplands of the western two-thirds of the county; however, good stands of broadleaf species are in this area, especially on bottom lands. Woodlands in the eastern third of the county are composed almost entirely of broadleaf species.

The forest industry is a major employer in the area, and the county is a major processing center for lumber, plywood, and pulp and paper. Although the productivity of Ashley County's woodlands is high, it is considerably below the potential.

The woodlands of Ashley County are also valuable as wildlife habitat and recreation areas and for soil and water conservation. Woodlands provide some grazing for domestic livestock; however, such use is far below the potential.

Table 8 contains information useful to woodland owners or forest managers planning use of soils for wood crops. Map unit symbols for soils suitable for wood crops are listed, and the woodland suitability group symbol for each soil is given. All soils bearing the same woodland suitability group require the same general

kinds of woodland management and have about the same potential productivity.

The first part of the *woodland suitability group*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

The third element in the symbol, a numeral, indicates the kind of trees for which the soils in the group are best suited and also indicates the severity of the hazard or limitation. The numerals 1, 2, and 3 indicate slight, moderate, and severe limitations, respectively, and suitability for needleleaf trees. The numerals 4, 5, and 6 indicate slight, moderate, and severe limitations, respectively, and suitability for broadleaf trees. The numerals 7, 8, and 9 indicate slight, moderate, and severe limitations, respectively, and suitability for both needleleaf and broadleaf trees.

In table 8 the soils are also rated for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index ratings for Ashley County are based on age 30 for eastern cottonwood, age 35 for American sycamore, and age 50 for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Common trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Engineering

James L. Janski, assistant state conservation engineer, Soil Conservation Service, helped prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential,

commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 9 shows, for each kind of soil, the degree and kind of limitations for building site development; table 10, for sanitary facilities; and table 12, for water management. Table 11 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping are indicated in table 9. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 9 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling of the foundation does not occur. These ratings were determined from estimates of the compressibility and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 9 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Lawns and landscaping require soils that are suitable for the establishment and maintenance of turf for lawns and ornamental trees and shrubs for landscaping. The best soils are firm after rains, are not dusty when dry, and absorb water readily and hold sufficient moisture for plant growth. The surface layer should be free of stones. If shaping is required, the soils should be thick enough over bedrock or hardpan to allow for necessary grading. In rating the soils, the availability of water for sprinkling is assumed.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 10 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoon areas are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 10 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey

soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 11 by ratings of good, fair, poor, or unsuited. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 15 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 11 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are rated unsuited as sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 15.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil

survey. In table 12 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of a soil for use in embankments, dikes, and levees.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, presence of salts and alkali, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 13 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 10, and interpretations for dwellings without basements and for local roads and streets, given in table 9.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to

obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

Wildlife habitat

Paul M. Brady, biologist, Soil Conservation Service, helped prepare this section.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, sorghum, soybeans, and millet.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are ryegrass, annual lespedeza, and red clover.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are beggarweed, perennial lespedeza, ragweed, pokeweed, and cheatgrass.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of hardwood trees and shrubs and vines are oaks, hickories, wild cherry, dogwoods, maples, viburnums, honeysuckle, greenbriers, and grapes.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are loblolly pine, shortleaf pine, and redcedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweeds, wild millet, rushes, sedges, cattail, and pond weed.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be

created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include cottontail rabbit, bobwhite quail, mourning dove, meadowlark, and field sparrow.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include whitetail deer, wild turkey, gray squirrel, raccoon, and woodpeckers.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Wildlife attracted to these areas include ducks, geese, kingfisher, mink, muskrat, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 15 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 15 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 15 in the standard terms used by the U.S. Department of Agriculture (*5*). These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The estimated classification, without group index numbers, is given in table 15. Also in table 15 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 16 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 17 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 15 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock for all soils in Ashley County is more than 5 feet. The depth is based on measurements made in many soil borings and on other observations during the mapping of the soils.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Physical and chemical analyses of selected soils

The results of physical analysis of a typical pedon of a Guyton soil and of a Portland soil are given in table 18. The results of chemical analyses of these soils are given in table 19. The samples were collected from carefully selected sites that are typical of the respective series and discussed in the section "Soil series and morphology." The Guyton sample was analyzed by the University of Arkansas in Fayetteville, and the Portland sample was analyzed by the Soil Survey Laboratory in Lincoln, Nebr.

Table 18.—Silt and clay particle size distribution was determined by the hydrometer method (*3*). Sands were measured by sieving (*6*).

Table 19.—The bases were extracted with 1*N*, pH 7.0, ammonium acetate. The amounts of calcium, potassium, and sodium were determined with a flamephotometer, and magnesium was measured by atomic absorption. The extractable acidity was determined by the barium chloride-triethanolamine method (*7*).

The total extractable calcium, magnesium, sodium, potassium, and extractable acidity is an approximation of the cation-exchange capacity of the soil. Except in soils that contain soluble salts, base saturation was determined by dividing this total into the sum of calcium, magnesium, potassium, and sodium, and multiplying by 100.

Soil pH was determined on 1:1 soil to water mixture.

Organic carbon was determined by the dry combustion method, which measures carbon dioxide evolution gravimetrically (*6*).

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*5*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is a range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Amy series

The Amy series consists of poorly drained, slowly permeable soils that formed in loamy marine sediments. These level soils are on broad uplands flats on the Coastal Plain. They are saturated with water in late winter and early spring. The native vegetation is mixed pines and hardwoods. Slopes are 0 to 1 percent.

Amy soils are geographically associated with Lafe, Pheba, and Savannah soils. Lafe soils, which are in slightly higher positions on the landscape than Amy soils, have a browner subsoil and a natric horizon. Pheba soils, which occur on slightly higher lying upland flats, have a coarse-silty control section and a fragipan. Savannah soils, which occur in higher positions on uplands, have a fine-loamy control section and a fragipan.

Typical pedon of Amy silt loam, 0 to 1 percent slopes, in a wooded area in the SE1/4NE1/4NW1/4 sec. 3, T. 16 S., R. 8 W.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

A2g—3 to 12 inches; light gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; many fine roots; strongly acid; clear smooth boundary.

B21tg—12 to 39 inches; gray (10YR 5/1) silty clay loam; common and medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; thin continuous clay films on faces of peds; few interfingers and coatings of light gray silt; strongly acid; gradual smooth boundary.

B22tg—39 to 54 inches; gray (10YR 5/1) silty clay loam; common fine and medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films on faces of peds; strongly acid; clear smooth boundary.

C—54 to 72 inches; gray (10YR 5/1) silty clay loam; few medium distinct yellowish brown (10YR 5/6) mottles; massive; firm; strongly acid.

Solum thickness ranges from 40 to 70 inches. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 8 to 24 inches in thickness. The A1 horizon has hue of 10YR with value of 4 and chroma of 1 or 2, or with value of 5 and chroma of 2. The A2 horizon has hue of 10YR, value of 6, and chroma of 1 or 2.

The B2tg horizon has hue of 10YR with value of 5 or 6 and chroma or 1, or with value of 6 and chroma of 2, or it has hue of 2.5Y, value of 6, and chroma of 2. It has common or many fine or medium mottles in shades of brown. Texture is silt loam or silty clay loam.

The C horizon has the same color and texture range as the B2tg horizon.

Arkabutla series

The Arkabutla series consists of somewhat poorly drained, moderately permeable soils that formed in silty alluvium. These level soils are stream flood plains in the loessial plains. They are saturated with water in late winter and early spring. The native vegetation is mixed pines and hardwoods. Slopes are 0 to 1 percent.

Arkabutla soils are geographically associated with Grenada soils. Grenada soils, which are on uplands adjacent to Arkabutla soils, have an argillic horizon and a fragipan.

Typical pedon of Arkabutla silt loam, frequently flooded, in a wooded area in the SE1/4SE1/4SE1/4 sec. 18, T. 18 S., R. 6 W.

A11—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

A12—2 to 8 inches; dark brown (10YR 4/3) silt loam; common fine faint light brownish gray (10YR 6/2) mottles; weak medium granular structure; friable; common fine roots; strongly acid; clear smooth boundary.

B21—8 to 21 inches; brown (10YR 5/3) silty clay loam; common medium faint light brownish gray (10YR 6/2) and few fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable;

few fine roots; common medium black concretions; strongly acid; clear smooth boundary.

B22g—21 to 47 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct yellowish brown (10YR 5/4, 5/6) mottles; weak medium subangular blocky structure; friable; common medium black concretions; very strongly acid; gradual smooth boundary.

B3g—47 to 58 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct yellowish brown (10YR 5/4, 5/6, 5/8) mottles; weak medium subangular blocky structure; friable; common medium strong brown and black concretions; very strongly acid; clear smooth boundary.

C—58 to 72 inches; light brownish gray (10YR 6/2) silt loam; few medium faint yellowish brown (10YR 5/4) mottles; massive; friable; few strong brown concretions; very strongly acid.

Solum thickness exceeds 40 inches. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 4 to 8 inches in thickness. The Ap and A12 horizons have hue of 10YR with value of 4 and chroma of 3 or 4, or with value of 5 and chroma of 3. Some pedons have a thin A11 horizon that has hue of 10YR, value of 3, and chroma of 2.

The B21 horizon has hue of 10YR, value of 5, and chroma of 2, 3, 4, or 6. It has few to many fine or medium mottles with chroma of 2 or less. The Bg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has common or many fine or medium mottles in shades of brown. Texture of the B horizon is silt loam, loam, or silty clay loam.

The C horizon has the same color and texture range as the B horizon.

Bude series

The Bude series consists of somewhat poorly drained, slowly permeable soils that formed in thin deposits of windblown silts. These level and nearly level soils are on uplands of the loessial plains. They have a perched water table in late winter and early spring. The native vegetation is mixed hardwoods and pines. Slopes are 0 to 2 percent.

Bude soils are geographically associated with Providence soils. Providence soils, which are on side slopes adjacent to Bude soils, lack gray mottles in the upper part of the subsoil and have an argillic horizon above the fragipan.

Typical pedon of Bude silt loam, 0 to 2 percent slopes, in a wooded area in the NW1/4SE1/4NE1/4 sec. 33, T. 19 S., R. 8 W.

A1—0 to 4 inches; dark brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; common fine roots; medium acid; clear smooth boundary.

A2—4 to 10 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; few fine brown concretions; strongly acid; clear smooth boundary.

B21—10 to 17 inches; yellowish brown (10YR 5/4) silt loam; common fine distinct light brownish gray and common fine faint dark yellowish brown mottles; weak medium subangular blocky structure; friable; few fine pores; few fine roots; few fine brown concretions; strongly acid; clear smooth boundary.

B22—17 to 32 inches; mottled yellowish brown (10YR 5/4), light brownish gray (10YR 6/2), and dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few fine pores; few fine roots; few fine brown concretions; strongly acid; clear smooth boundary.

A'2&Bx—32 to 37 inches; mottled light brownish gray (10YR 6/2), light yellowish brown (10YR 6/4), and dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; dark yellowish brown portion is slightly brittle and compact; many fine voids; many brown concretions; light gray silt coating around faces of peds; strongly acid; clear irregular boundary.

Bx1—37 to 45 inches; mottled gray (10YR 6/1), pale brown (10YR 6/3), and yellowish brown (10YR 5/6) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; many fine voids; thin patchy clay films on faces of peds; prism faces coated with gray silt; few fine brown concretions; strongly acid; clear wavy boundary.

IIBx2—45 to 72 inches; mottled yellowish brown (10YR 5/6), pale brown (10YR 6/3), and light gray (10YR 7/1) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; many fine voids; thin patchy clay films on faces of peds; common vertical tongues of gray silt less than 1 inch wide; few fine brown concretions; strongly acid.

Solum thickness exceeds 60 inches. Reaction ranges from medium acid through very strongly acid throughout. Depth to the fragipan ranges from 18 to 40 inches.

The A horizon ranges from 4 to 10 inches in thickness. The A1 or Ap horizon has hue of 10YR with value of 4 and chroma of 2, 3, or 4, with value of 5 and chroma of 6, or with value of 6 and chroma of 4, or it is mottled in shades of brown. The A2 horizon has hue of 10YR with value of 5 and chroma of 3, or with value of 6 and chroma of 3 or 4.

The B2 horizon has hue of 10YR with value of 5 and chroma of 4, 6, or 8, or with value of 6 and chroma of 4. It has few to many mottles of chroma of 2 or less or is

mottled in shades of yellow, brown, and gray. It is silt loam or silty clay loam.

The A'2Bx horizon is mottled in shades of brown and gray. Some pedons have a grayish A'2 horizon or a mottled Bx&A'2 horizon. Texture is silt loam, and clay content of the A'2&Bx horizon is less than that of the B2 and Bx horizons.

The Bx horizon has hue of 10YR with value of 5 and chroma of 1, or with value of 6 and chroma of 1 or 2, or it is mottled in shades of yellow, brown, or gray. Texture is silt loam or silty clay loam. The IIBx has the same color range as the Bx horizon. Texture is silt loam, silty clay loam, or clay loam.

Calhoun series

The Calhoun series consists of poorly drained, slowly permeable soils that formed in deposits of windblown silts. These level soils are on flats and in depressions on uplands of the loessial plains. They are saturated with water in late winter and early spring. The native vegetation was prairie grasses. Slopes are 0 to 1 percent.

Calhoun soils are geographically associated with Calloway, Crowley, Grenada, and Henry soils. Calloway soils, which are in slightly higher positions on adjacent broad flats than Calhoun soils, have browner colors and a fragipan. Crowley soils, which are on adjacent broad flats, have a fine control section. Grenada soils, which are on ridges, have browner colors and a fragipan. Henry soils, which are on adjacent broad flats, have a coarse-silty control section and a fragipan.

Typical pedon of Calhoun silt loam, 0 to 1 percent slopes, in a cultivated area in the SW1/4SW1/4NW1/4 sec. 18, T. 17 S., R. 5 W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; strongly acid; abrupt smooth boundary.

A2g—5 to 14 inches; grayish brown (10YR 5/2) silt loam; common fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable; strongly acid; clear irregular boundary.

B21tg—14 to 28 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct dark yellowish brown (10YR 4/6) mottles; moderate medium subangular blocky structure; friable; thin light gray silt coatings on peds; silt tongues of A2g horizon 1/2 inch to 2 inches wide make up 15 to 20 percent of the mass; thin patchy clay films; few fine dark concretions; strongly acid; gradual wavy boundary.

B22tg—28 to 42 inches; grayish brown (10YR 5/2) silt loam; common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; thin light gray silt coats on peds; few tongues of A2g material 1/2 to 1 inch wide make up less than 10 percent of the mass; thin patchy clay films; few fine dark concretions; strongly acid; gradual smooth boundary.

B3g—42 to 50 inches; grayish brown (10YR 5/2) silt loam; many fine distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few thin strata 1/4 to 1/2 inch thick of dark grayish brown (10YR 4/2) silty clay; strongly acid; gradual smooth boundary.

C—50 to 72 inches; mottled light brownish gray (10YR 6/2), brown (10YR 5/3), and brownish yellow (10YR 6/6) silt loam; massive; friable; many dark concretions; strongly acid.

Solum thickness ranges from 40 to 70 inches. Reaction ranges from medium acid through very strongly acid throughout.

The A horizon ranges from 12 to 24 inches in thickness. The Ap or A1 horizon has hue of 10YR with value of 5 and chroma of 1 or 2, or with value of 4 and chroma of 2 or 3. The A2 horizon has hue of 10YR, value of 5, 6, or 7, and chroma of 1 or 2.

The B horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has common to many fine to medium mottles in shades of brown, yellow, and gray. Texture is silt loam or silty clay loam.

The C horizon has the same color range as the B horizon.

Calloway series

The Calloway series consists of somewhat poorly drained, slowly permeable soils that formed in thick deposits of windblown silts. These level and nearly level soils are on broad uplands of the loessial plains. They are saturated with water in winter and early spring. The native vegetation is mixed hardwoods and pine. Slopes are 0 to 3 percent.

Calloway soils are geographically associated with Calhoun, Grenada, and Henry soils. Calhoun soils, which are in slightly lower positions on the adjacent broad flats than Calloway soils, have grayer colors and lack a fragipan. Grenada soils, which are at adjacent higher positions, lack gray mottles in the upper part of the subsoil. Henry soils, which are in adjacent depressions, have grayer colors and a coarse-silty control section.

Typical pedon of Calloway silt loam, 0 to 1 percent slopes, in a wooded area in the SE1/4NE1/4SE1/4 sec. 16, T. 17 S., R. 6 W.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

A2—2 to 10 inches; brown (10YR 5/3) silt loam; common medium distinct dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; common

medium black concretions; strongly acid; gradual wavy boundary.

B—10 to 25 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine black concretions; strongly acid; gradual wavy boundary.

Bx&A'2—25 to 33 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct light brownish gray (10YR 6/2) and brownish yellow (10YR 6/8) mottles; the A'2 part consists of thin and medium light gray (10YR 7/1) silt coatings making up 15 percent of the horizon; moderate medium subangular blocky structure; firm, compact and brittle in 70 percent of the Bx portion, friable in the rest; few fine black concretions; strongly acid; gradual wavy boundary.

Bx1—33 to 50 inches; yellowish brown (10YR 5/4) silt loam; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in 80 percent of the matrix; thick continuous clay films on ped faces; friable light brownish gray (10YR 6/2) seams along vertical faces of some prisms and thin light gray (10YR 7/2) silt coatings on faces of peds; common fine black concretions; strongly acid; gradual wavy boundary.

Bx2—50 to 72 inches; yellowish brown (10YR 5/4) silt loam; few fine distinct yellowish brown (10YR 5/8) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in 70 percent of the matrix; thick continuous clay films on faces of peds; thin friable light brownish gray (10YR 6/2) seams along vertical faces of some prisms and thin patchy light gray (10YR 7/2) silt coatings on faces of peds; few fine black concretions; strongly acid.

Solum thickness exceeds 60 inches. Reaction is strongly acid or medium acid throughout. Depth to the fragipan ranges from 14 to 38 inches.

The A horizon is 10 inches thick or less. It has hue of 10YR with value of 4 and chroma of 1 or 2, or with value of 5 and chroma of 2 or 3.

The B horizon has hue of 10YR, value of 4 or 5, and chroma of 4. It has few to many mottles in shades of gray.

The Bx&A'2 horizon has hue of 10YR, value of 5, and chroma of 4 or 6. Texture is silt loam or silty clay. Silt coatings on faces of prisms are friable and are gray or light brownish gray.

The Bx horizon has hue of 10YR, value of 5, and chroma of 2, 4, or 6. Texture is silt loam or silty clay loam. There are few to many mottles in shades of gray, brown, and yellow.

Crevasse series

The Crevasse series consists of excessively drained, rapidly permeable soils that formed in sandy alluvium. These level soils are on flood plains of the Ouachita River. The native vegetation is loblolly pine and cottonwood. Slopes are 0 to 1 percent.

Crevasse soils are geographically associated with Guyton and Spadra Variant soils. Guyton soils, which are in lower positions on flood plains than Crevasse soils, have a grayer subsoil and a fine-silty control section. Spadra Variant soils, which are on adjacent natural levees, have an argillic horizon and a fine-loamy control section.

Typical pedon of Crevasse loamy fine sand, from an area of Crevasse soils, frequently flooded, in an idle field in the SE1/4NE1/4NE1/4 sec. 24, T. 18 S., R. 10 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loamy fine sand; single grain; loose; few fine roots; slightly acid; abrupt smooth boundary.

C1—4 to 16 inches; brown (10YR 5/3) loamy sand; single grain; loose; few fine roots; medium acid; gradual smooth boundary.

C2—16 to 30 inches; light yellowish brown (10YR 6/4) loamy sand; single grain; loose; medium acid; gradual smooth boundary.

C3—30 to 42 inches; light yellowish brown (10YR 6/4) loamy sand; common medium distinct brownish yellow (10YR 6/8) and pale brown (10YR 6/3) mottles; single grain; loose; medium acid; gradual smooth boundary.

C4—42 to 72 inches; brown (10YR 5/3) sand; single grain; loose; medium acid.

Reaction ranges from medium acid through neutral throughout the profile.

The A horizon ranges from 4 to 10 inches in thickness. It has hue of 10YR with value of 4 and chroma of 2, or with value of 5 and chroma of 2 or 3. Texture is sandy loam, loamy fine sand, or fine sand.

The C horizon has hue of 10YR with value of 5 and chroma of 2, 3, 4, or 6, or with value of 6 and chroma of 4. Texture is sand, loamy sand, or loamy fine sand.

Crowley series

The Crowley series consists of somewhat poorly drained, very slowly permeable soils that formed in alluvial sediments of Pleistocene age. These level soils are on broad flats of the loessial plains. They are saturated with water in late winter and early spring. The native vegetation was prairie grasses. Slopes are 0 to 1 percent.

Crowley soils are geographically associated with Calhoun and Henry soils. Calhoun soils, which are on broad flats adjacent to Crowley soils, have a fine-silty control

section. Henry soils, which are in adjacent depressions and flatwood areas, have a coarse-silty control section and a fragipan.

Typical pedon of Crowley silt loam, 0 to 1 percent slopes, in a cultivated field in the SE1/4NE1/4SW1/4 sec. 1, T. 16 S., R. 7 W.

Ap1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

Ap2—5 to 10 inches; dark grayish brown (10YR 4/2) silt loam; few medium distinct gray (10YR 5/1) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

A2g—10 to 25 inches; grayish brown (10YR 5/2) silt loam; many fine faint brown mottles; weak medium subangular blocky structure; friable; few fine soft dark masses; strongly acid; abrupt wavy boundary.

B21t—25 to 40 inches; grayish brown (10YR 5/2) silty clay; common medium distinct yellowish red (10YR 5/6) and common fine faint gray and brown mottles; surfaces of peds have coatings of gray (10YR 5/1); moderate medium subangular blocky structure; very firm; thick continuous clay films; common black concretions; few vertical streaks of grayish brown (10YR 5/2) silt loam 1 to 2 inches in diameter; strongly acid; gradual smooth boundary.

B22tg—40 to 49 inches; grayish brown (10YR 5/2) silty clay; few fine distinct yellowish red and common fine faint gray and brown mottles; surfaces of peds have coatings of gray (10YR 5/1); moderate medium subangular blocky structure; very firm; thick continuous clay films; common black concretions; few vertical streaks of grayish brown (10YR 5/2) silt loam 1 to 2 inches in diameter; strongly acid; gradual smooth boundary.

B3g—49 to 72 inches; mottled gray (10YR 5/1), brown (10YR 5/3), and yellowish brown (10YR 5/8) silty clay; weak medium subangular blocky structure; few black concretions; few small pebbles; medium acid.

Solum thickness ranges from 40 to 75 inches. Reaction ranges from medium acid through very strongly acid in the A and B2t horizons and is slightly acid or medium acid in the B3 horizon.

The A horizon ranges from 12 to 25 inches in thickness. The Ap or A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The A2g horizon has hue of 10YR with value of 5 and chroma of 1 or 2, or with value of 6 and chroma of 1, and it has few to common brownish mottles.

The B2t horizon has hue of 10YR with value of 4, 5, or 6 and chroma of 1, or with value of 5 and chroma of 2, and it has common to many fine to medium prominent yellowish red, red, or dark red mottles. There are few to many vertical streaks of gray or brown silt loam. Texture of the B2t horizon is silty clay or silty clay loam. The B3g horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2, and it is mottled with shades of brown or red. Texture is silty clay or silty clay loam.

Grenada series

The Grenada series consists of moderately well drained, slowly permeable soils that formed in thick deposits of windblown silts. These nearly level to moderately sloping soils are on uplands of the loessial plains. The native vegetation is mixed hardwoods and pines. Slopes are 1 to 12 percent.

Grenada soils are geographically associated with Arkabutla, Calhoun, Calloway, and Henry soils. Arkabutla soils, which are on flood plains adjacent to Grenada soils, have a grayer subsoil and do not have a fragipan. Calhoun soils, which are in depressions and on broad flats, lack a fragipan. Calloway soils, which are on lower slopes and broad flats, have gray mottles in the upper part of the subsoil. Henry soils, which are in depressions and on broad flats, have a coarse-silty control section.

Typical pedon of Grenada silt loam, 3 to 8 percent slopes, in a wooded area in the SE1/4NE1/4SE1/4 sec. 9, T. 16 S., R. 5 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; many fine pores; few fine black concretions; strongly acid; clear smooth boundary.

B1—4 to 7 inches; yellowish brown (10YR 5/4) silt loam; few fine faint yellowish brown mottles; weak medium subangular blocky structure; friable; few fine roots; few fine black masses; very strongly acid; clear smooth boundary.

B21—7 to 17 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few fine black masses; very strongly acid; gradual smooth boundary.

B22—17 to 22 inches; yellowish brown (10YR 5/6) silt loam; common fine to medium distinct gray (10YR 6/1) mottles; moderate medium subangular blocky structure; friable; few fine black masses; very strongly acid; abrupt smooth boundary.

A'2—22 to 26 inches; light gray (10YR 7/1) silt loam; common fine to medium distinct yellowish brown (10YR 5/4) mottles; weak fine and medium subangular blocky structure; friable, slightly brittle; many fine vesicular pores; few fine black concretions; very strongly acid; clear irregular boundary.

Bx1—26 to 37 inches; brown (10YR 5/3) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; very hard; thick continuous gray clay films on faces of peds and prisms; tongues of gray silty material between prisms; few vesicular

pores; few fine and medium black concretions; strongly acid; gradual wavy boundary.

Bx2—37 to 72 inches; yellowish brown (10YR 5/4) silt loam; common distinct yellowish brown (10YR 5/8) and few fine distinct gray (10YR 5/1) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; hard; few thin patchy gray clay films; light gray silt coats on peds and prism faces; few fine black concretions; strongly acid.

Solum thickness exceeds 60 inches. Reaction is strongly acid or very strongly acid throughout. Depth to the fragipan ranges from 17 to 30 inches.

The A horizon is 4 to 8 inches in thickness. It has hue of 10YR with value of 4 and chroma of 2 or 3, or with value of 5 and chroma of 2.

The B horizon has hue of 10YR with value of 5 and chroma of 4 or 6, or with value of 6 and chroma of 4. Texture of the B horizon is silt loam or silty clay loam.

The A'2 horizon has hue of 10YR with value of 5 to 7 and chroma of 1 or 2, or with value of 7 and chroma of 3. Texture is silt loam or silt.

The Bx horizon has hue of 10YR, value of 5, and chroma of 3, 4, or 6, and it has mottles with chroma of 2 or less. Texture is silt loam or silty clay loam.

Guyton series

The Guyton series consists of poorly drained, slowly permeable soils that formed in silty marine sediments. These level soils are on broad upland flats and flood plains in the Coastal Plain. They are saturated with water in late winter and early spring. The native vegetation is mixed hardwoods and pines. Slopes are 0 to 1 percent.

Guyton soils are geographically associated with Crevasse, Ouachita, Pheba, Savannah, and Spadra Variant soils. Crevasse soils, which are in higher positions on flood plains than Guyton soils, have a browner subsoil and a sandy control section. Ouachita soils, which are in slightly higher positions on flood plains, have a browner subsoil and a cambic horizon. Pheba soils, which are in higher positions on adjacent uplands flats, have a coarse-silty control section and a fragipan. Savannah soils, which are in higher positions on adjacent uplands, have a fine-loamy control section and a fragipan. Spadra Variant soils, which are in slightly higher positions on flood plains, have a fine-loamy control section and lack gray mottles.

Typical pedon of Guyton silt loam, from an area of Guyton soils, frequently flooded, in a wooded area in the SW1/4NE1/4SW1/4 sec. 7, T. 18 S., R. 9 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; many medium and few large roots; strongly acid; clear smooth boundary.

A2g—4 to 14 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; friable; many medium and few large roots; strongly acid; clear wavy boundary.

Bg&Ag—14 to 22 inches; dark grayish brown (10YR 4/2) silty clay loam, 25 percent tongues of light gray (10YR 7/1) silt loam about 2 inches wide and in pockets; few medium faint dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; firm; few medium roots; thick patchy very dark gray clay films on faces of peds and in pores; very strongly acid; clear wavy boundary.

B21tg—22 to 34 inches; dark grayish brown (10YR 4/2) silty clay loam, 15 percent tongues 1/2 to 1 inch wide and interfingering of light gray (10YR 7/1) silt loam and in small pockets; moderate coarse subangular blocky structure; few medium roots; few fine pores; thick patchy brown and very dark gray clay films on faces of peds and in pores; very strongly acid; clear smooth boundary.

B22tg—34 to 43 inches; grayish brown (10YR 5/2) silty clay loam; few fine faint yellowish brown mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; thin patchy clay films on faces of peds; light gray silt as coatings on peds; light gray silt as coatings on peds and in small pockets; very strongly acid; gradual smooth boundary.

B23tg—43 to 54 inches; grayish brown (10YR 5/2) silty clay loam; few fine faint yellowish brown mottles; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of peds; light gray silt as coatings on peds and in small pockets; very strongly acid; gradual smooth boundary.

B24tg—54 to 66 inches; gray (10YR 5/1) silty clay loam; few fine faint yellowish brown mottles; weak coarse subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of peds; light gray silt as coatings on peds and in small pockets; very strongly acid; gradual smooth boundary.

B25tg—66 to 77 inches; gray (10YR 5/1) clay loam; common medium distinct dark yellowish brown (10YR 4/6) mottles; weak coarse subangular blocky structure; firm; thin patchy clay films on faces of peds; light gray silt as coatings on peds and in small pockets; very strongly acid; clear smooth boundary.

B3g—77 to 80 inches; light brownish gray (2.5YR 6/2) clay loam; few fine faint yellowish brown mottles; weak coarse subangular blocky structure; firm; very strongly acid.

Solum thickness ranges from 52 to 80 inches. Reaction is medium acid to extremely acid throughout.

The A horizon ranges from 12 to 30 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 2. The A2 horizon has hue of 10YR with value of 6 or 7 and chroma of 1 or 2, or with value of 5 and chroma of 1. It has common or few fine or medium mottles in shades of brown. Texture is silt loam or very fine sandy loam.

The Bt horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 1 or 2. It has common or many fine or medium mottles in shades of brown or gray. Texture is silt loam, silty clay loam, or clay loam.

The B3 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2, or it has hue of 2.5Y, value of 6, and chroma of 2. It has common or many fine or medium mottles in shades of brown or gray. Texture is silt loam, silty clay loam, or clay loam.

Hebert series

The Hebert series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loamy sediments along Bayou Bartholomew and its former channels. These level soils are on old natural levees. The native vegetation was mixed hardwoods. Slopes are 0 to 1 percent.

Hebert soils are geographically associated with Perry, Portland, and Rilla soils. Perry and Portland soils, which are on broad flats adjacent to Hebert soils, have a very-fine control section and are alkaline in the lower part of the subsoil. Rilla soils, which are at slightly higher elevations, lack gray mottles and are well drained.

Typical pedon of Hebert silt loam, 0 to 1 percent slopes, in a cultivated field in the NE1/4NW1/4NE1/4 sec. 3, T. 17 S., R. 4 W.

Ap1—0 to 4 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

Ap2—4 to 8 inches; brown (10YR 5/3) silt loam; many fine faint gray and strong brown mottles; weak fine platy structure; friable; few fine roots; medium acid; abrupt smooth boundary.

B21t—8 to 17 inches; grayish brown (10YR 5/2) silt loam; many medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; thin gray (10YR 6/1) silt coatings on faces of peds; thin patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B22t—17 to 25 inches; brown (7.5YR 5/4) silty clay loam; many fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; thin gray (10YR 6/1) silt coatings on faces of peds; thin patchy clay films on faces of peds; slightly acid; gradual smooth boundary.

B23t—25 to 39 inches; reddish brown (5YR 5/3) silty clay loam; many fine distinct yellowish red mottles; moderate medium subangular blocky structure; friable; thin gray (10YR 6/1) silt coatings on faces of peds; thin patchy clay films on faces of peds; slightly acid; gradual smooth boundary.

C—39 to 72 inches; reddish brown (5YR 5/3) silty clay loam; common fine distinct yellowish red mottles; yellowish red (5YR 4/6) silty clay strata as thick as 4 inches; massive; friable; mildly alkaline.

Solum thickness ranges from 36 to 60 inches. Reaction is slightly acid through strongly acid in the A and B horizons and slightly acid through mildly alkaline in the C horizon.

The A horizon is dominantly about 8 inches thick but ranges to 12 inches in thickness. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The B horizon has hue of 5YR, value of 4 or 5, and chroma of 3 or 4, or it has hue of 7.5YR, value of 4 or 5, and chroma of 4. Subhorizons of the Bt horizons in some pedons have hue of 10YR with value of 4, 5, or 6 and chroma of 2, or with value of 6 and chroma of 3. Mottles are in shades of brown, gray, and red.

The C horizon has a similar range of color and mottles as the B horizon. Texture is silt loam, silty clay loam, or very fine sandy loam. In places the soil is thinly stratified with finer textured sediments.

Henry series

The Henry series consists of poorly drained, slowly permeable soils that formed in thick deposits of windblown silts. These level soils are in depressions and on broad upland flats of the loessial plains. They are saturated with water in winter and spring. The native vegetation is mixed hardwoods and pines. Slopes are 0 to 1 percent.

Henry soils are geographically associated with Calhoun, Calloway, Crowley, and Grenada soils. Calhoun soils, which are on broad flats adjacent to Henry soils, have a fine-silty control section and lack a fragipan. Calloway soils, which are at slightly higher elevations on the adjacent slopes and broad flats, and have browner colors and a fine-silty control section. Crowley soils, which are on the adjacent broad flats, have a fine control section and lack a fragipan. Grenada soils, which are on the adjacent ridges and side slopes, have browner colors and a fine-silty control section.

Typical pedon of Henry silt loam, 0 to 1 percent slopes, in a wooded area in the NW1/4NW1/4NE1/4 sec. 34, T. 15 S., R. 5 W.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; many fine faint brown mottles; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A21g—5 to 12 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/8) mottles; weak medium platy structure; friable; few fine dark concretions; many fine roots; strongly acid; gradual smooth boundary.

A22g—12 to 24 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct light gray (10YR 7/1) and few fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable; many fine dark concretions; strongly acid; abrupt wavy boundary.

Bx1—24 to 30 inches; light brownish gray (10YR 6/2) silty clay loam; common medium distinct light gray (10YR 7/1) and few fine distinct yellowish brown mottles; weak coarse prismatic structure parting to strong medium subangular blocky; firm, compact and brittle; many fine pores; thick continuous clay films within the prisms; gray silt coatings between prisms; common fine dark concretions; strongly acid; gradual wavy boundary.

Bx2—30 to 47 inches; light brownish gray (10YR 6/2) silt loam; many fine faint light gray and light yellowish brown mottles; weak coarse prismatic structure parting to strong medium subangular blocky; firm, compact and brittle; many fine pores; dark grayish brown (10YR 4/2) clay films between prisms, thick patchy clay films within prisms, gray silt coatings between prisms; common fine dark concretions; strongly acid; gradual smooth boundary.

B3g—47 to 72 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct light gray (10YR 7/1) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; firm; many fine pores; few fine dark concretions; strongly acid.

Solum thickness ranges from 48 to more than 72 inches. Reaction is strongly acid or medium acid in the upper part of the solum and strongly acid to neutral in the lower part. Depth to the fragipan ranges from 18 to 36 inches.

The Ap or A1 horizon has hue of 10YR with value of 4 or 5 and chroma of 2 or 3, or with value of 6 and chroma of 2. In some places, this horizon contains mottles in shades of brown. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is mottled in shades of brown and gray.

The B horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is mottled in shades of gray, brown, and yellow. It is silty clay loam or silt loam.

The C horizon has the same color range as the B horizon. Texture is silt or silt loam.

Lafe series

The Lafe series consists of somewhat poorly drained, very slowly permeable soils that formed in loamy sediments. These level soils are on upland flats in areas of low relief on the Coastal Plain. They are saturated with water in late winter and early spring. The native vegetation is scrub hardwoods, pines, and grasses. Slopes are 0 to 1 percent.

Lafe soils are geographically associated with Amy soils. Amy soils, which are on broad flats adjacent to Lafe soils, have grayer colors and lack a natric horizon.

Typical pedon of Lafe silt loam, 0 to 1 percent slopes, in an idle field in the NW1/4SW1/4SW1/4 sec. 28, T. 15 S., R. 8 W.

A1—0 to 8 inches; grayish brown (10YR 5/2) silt loam; common fine and medium dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

B21—8 to 17 inches; brown (10YR 5/3) silt loam; few medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; gray silt tongues and interfingers between prisms; thin patchy clay films and gray silt coatings on faces of peds; moderately alkaline; clear wavy boundary.

B22t—17 to 25 inches; gray (10YR 5/1) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; gray silt tongues and interfingers between prisms; thin patchy clay films and gray silt coatings on faces of peds; strongly alkaline; gradual wavy boundary.

B23t—25 to 36 inches; gray (10YR 5/1) silty clay loam; few medium distinct brown (10YR 5/3) and yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; gray silt tongues and interfingers between prisms; thin patchy clay films and gray silt coatings on faces of peds; few medium calcium carbonate concretions; strongly alkaline; gradual wavy boundary.

B24t—36 to 49 inches; gray (10YR 5/1) silty clay loam; few medium distinct yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; gray silt tongues and interfingers between prisms; thin patchy clay films on peds; patchy black coatings on peds; common fine black concretions; few medium calcium carbonate concretions; strongly alkaline; gradual wavy boundary.

C—49 to 72 inches; light gray (10YR 6/1) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; firm; common calcium carbonate concretions; strongly alkaline.

Solum thickness ranges from about 20 to 50 inches. Reaction ranges from strongly acid through slightly acid

in the A horizon, ranges from mildly alkaline through moderately alkaline in the upper part of the B horizon, and is moderately alkaline or strongly alkaline in the lower part and in the C horizon. Depth to horizons with sodium saturation of 15 percent or more ranges from 3 to 12 inches.

The A horizon ranges from 3 to 12 inches in thickness. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2.

The B21t horizon has hue of 10YR with value of 5 and chroma of 3 or 4, or with value of 6 and chroma of 3, and is mottled with shades of gray and brown. The B22t, B23t, and B24t horizons have the same color range as the B21t horizon, or they have hue of 10YR, value of 5, and chroma of 1 and are mottled with shades of brown. Texture of the B2t horizon is silt loam or silty clay loam.

The C horizon has hue of 10YR with value of 6 and chroma of 1, 2, or 3, or with value of 7 and chroma of 1. Texture is silty clay loam, silt loam, or fine sandy loam.

Ouachita series

The Ouachita series consists of well drained, moderately slowly permeable soils that formed in loamy alluvium. These level soils are on flood plains of streams in the Coastal Plain. The native vegetation is mixed hardwoods and pine. Slopes are 0 to 1 percent.

Ouachita soils are geographically associated with Guyton soils. Guyton soils, which are in slightly lower positions on flood plains than Ouachita soils, have a grayer subsoil and an argillic horizon.

Typical pedon of Ouachita silt loam, frequently flooded, in a wooded area in the SW1/4SE1/4SW1/4 sec. 29, T. 15 S., R. 7 W.

A11—0 to 5 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; many medium and fine roots; medium acid; abrupt smooth boundary.

A12—5 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; many fine roots; many fine pores; strongly acid; clear smooth boundary.

B21—20 to 33 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; few fine roots; few fine pores; very strongly acid; gradual smooth boundary.

B22—33 to 47 inches; yellowish brown (10YR 5/4) loam; few fine faint grayish brown mottles; moderate medium subangular blocky structure; slightly plastic; few fine roots; few fine pores; very strongly acid; gradual smooth boundary.

B23—47 to 58 inches; yellowish brown (10YR 5/4) loam; few medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine pores; very strongly acid; gradual smooth boundary.

B24—58 to 68 inches; yellowish brown (10YR 5/4) loam; few medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine pores; very strongly acid; gradual wavy boundary.

C—68 to 76 inches; yellowish brown (10YR 5/4) fine sandy loam; many medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/8) mottles; weak fine granular structure; very friable; few fine pores; very strongly acid.

Solum thickness ranges from 40 to 80 inches. The soil is strongly acid or very strongly acid throughout except for the A horizon in limed areas.

The A horizon ranges from 10 to 21 inches in thickness. The A11 horizon has hue of 10YR, value of 4, and chroma of 2 or 3. The A12 horizon has hue of 10YR with value of 4 or 5 and chroma of 3, or with value of 4 and chroma of 4.

The B2 horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Texture is silt loam, loam, or silty clay loam. The B horizon in some pedons is mottled in shades of gray and brown below a depth of 24 inches.

The C horizon has the same color range as the B2 horizon. Texture is silt loam or fine sandy loam.

Perry series

The Perry series consists of poorly drained, very slowly permeable soils that formed in beds of clayey alluvium. These soils are on level broad flats or in depressions along Bayou Bartholomew and its former channels. They have a seasonal high water table in late winter and early spring. The native vegetation was mixed hardwood trees. Slopes are 0 to 1 percent.

Perry soils are geographically associated with Hebert, Portland, Rilla, and Yorktown soils. Hebert soils, which are on low natural levees adjacent to Perry soils, have a fine-silty control section and are acid in the lower part of the subsoil. Portland soils, which are on adjacent broad flats, lack low chroma in the upper part of the cambic horizon. Rilla soils, which are on natural levees, have a fine-silty control section and are better drained. Yorktown soils, which are on low ponded backswamps, lack vertic properties.

Typical pedon of Perry clay, 0 to 1 percent slopes, in a cultivated field in the SE1/4SW1/4NE1/4 sec. 24, T. 16 S., R. 4 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) clay; many medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; very firm; few fine roots; strongly acid; abrupt smooth boundary.

B2g—6 to 24 inches; gray (10YR 6/1) clay; many medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm;

few fine roots; few slickensides 3 to 5 inches wide on a 45-degree angle; strongly acid; clear wavy boundary.

IIB3—24 to 43 inches; reddish brown (5YR 4/4) clay; few fine faint yellowish red mottles; moderate medium subangular blocky structure; firm; few small white and black concretions; common slickensides 3 to 5 inches wide on a 45-degree angle; neutral; clear smooth boundary.

IIC—43 to 72 inches; reddish brown (5YR 4/4) clay; many coarse prominent grayish brown (10YR 5/2) and few fine distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; many carbonate concretions; moderately alkaline.

Solum thickness ranges from 30 to 60 inches. Depth to the IIB horizon ranges from 21 to 36 inches. Reaction is strongly acid or medium acid in the A and B horizons and neutral to moderately alkaline in the IIB and IIC horizons.

The A horizon ranges from 4 to 9 inches in thickness. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2.

The Bg horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 1; it has few to many mottles in shades of brown.

The IIB horizon has hue of 5YR, value of 3 or 4, and chroma of 2, 3, or 4; it has few to many mottles in shades of red, gray, and brown.

The IIC horizon has hue of 5YR, value of 4 or 5, and chroma of 3 or 4. It is calcareous and contains few to many fine to coarse carbonate concretions.

Pheba series

The Pheba series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loamy marine sediment. These level and nearly level soils are on uplands of the Coastal Plain. The native vegetation is mixed hardwoods and pines. Slopes are 0 to 2 percent.

Pheba soils are geographically closely associated with Amy, Guyton, and Savannah soils. Amy soils, which are in lower positions on the landscape than Pheba soils, have a fine-silty control section and lack a fragipan. Guyton soils, which are on lower adjacent upland flats and flood plains, have a fine-silty control section and lack a fragipan. Savannah soils, which are higher, have a browner subsoil and a fine-loamy control section.

Typical pedon of Pheba silt loam, 0 to 2 percent slopes, in a wooded area in the NE1/4SE1/4SE1/4 sec. 15, T. 17 S., R. 8 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; many fine faint gray and yellowish brown mottles; weak fine granular structure; friable; many fine and medium roots; few fine pores; few fine dark concretions; strongly acid; abrupt smooth boundary.

A2—4 to 8 inches; pale brown (10YR 6/3) silt loam; few medium distinct yellowish brown (10YR 6/8) mottles; weak fine subangular blocky structure; friable; many fine roots; few fine dark concretions; few fine pores; strongly acid; clear smooth boundary.

B2—8 to 22 inches; light yellowish brown (10YR 6/4) silt loam; common fine distinct yellowish brown (10YR 5/8) and few fine faint gray mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; many fine dark soft masses; very strongly acid; clear wavy boundary.

A'2—22 to 28 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct yellowish brown (10YR 5/8) and few medium faint brown mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few fine dark masses; very strongly acid; abrupt wavy boundary.

Bx1—28 to 41 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct yellowish brown (10YR 5/8) and gray (10YR 6/1) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 70 percent of the volume; few thin patchy clay films; light brownish gray (10YR 6/2) silt coatings between most prisms; few fine soft dark masses; very strongly acid; abrupt wavy boundary.

Bx2—41 to 56 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 70 percent of the volume; thin patchy clay films on faces of peds; 1/2 to 1 inch wide seams of light brownish gray (10YR 6/2) silt between prisms; few fine dark masses; very strongly acid; gradual smooth boundary.

Bx3—56 to 72 inches; yellowish brown (10YR 5/6) silt loam; common fine distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to moderate medium angular blocky; firm, very compact and brittle in about 70 percent of the volume; thin continuous clay films; light brownish gray (10YR 6/2) silt coatings between some prisms and on faces of few peds; very strongly acid.

Solum thickness is more than 60 inches. Reaction is strongly acid or very strongly acid throughout. Depth to the fragipan ranges from 14 to 30 inches.

The A horizon ranges from 6 to 10 inches in thickness. The A1 horizon has hue of 10YR, value of 4, and chroma of 1, 2, or 3. The Ap or A2 horizon has hue of 10YR with value of 5 and chroma of 2, or with value of 6 and chroma of 3.

The B2 horizon has hue of 10YR with value of 5 and chroma of 4 or 6, or with value of 6 and chroma of 3 or

4. It has few to many fine to medium mottles in shades of brown, yellow, and gray. Mottles of chroma 2 or lower are within 16 inches of the surface. Texture is silt loam or loam.

The A'2 horizon has hue of 10YR with value of 6 or 7 and chroma of 1 or 2, or with value of 5 and chroma of 1.

The Bx horizon has hue of 10YR, value of 5, and chroma of 4 or 6, and mottles are in shades of brown, gray, and red. Texture is silt loam or silty clay loam.

Pikeville series

The Pikeville series consists of well drained, moderately permeable soils that formed in thick beds of loamy and gravelly marine deposits. These gently sloping soils are on uplands of the Coastal Plain. The native vegetation is mixed hardwoods and pines. Slopes range from 3 to 8 percent.

Pikeville soils are geographically associated with Ruston, Savannah, and Smithdale soils. Ruston and Smithdale soils, which are on side slopes adjacent to Pikeville soils, have less gravel in the lower part of the subsoil. Savannah soils, which are on adjacent side slopes, have a fragipan and less gravel in the lower part of the subsoil.

Typical pedon of Pikeville fine sandy loam, 3 to 8 percent slopes, in an idle field in the NE1/4SE1/4 SW1/4 sec. 2, T. 16 S., R. 7 W.

Ap—0 to 4 inches; dark brown (10YR 4/3) sandy loam; weak fine granular structure; friable; many fine and medium roots; 5 percent gravel by volume; strongly acid; abrupt smooth boundary.

A2—4 to 15 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; few fine roots; 8 percent gravel by volume; strongly acid; gradual wavy boundary.

B21t—15 to 28 inches; yellowish red (5YR 5/6) loam; moderate medium subangular blocky structure; friable; few thin patchy clay films on surfaces of peds; few fine roots; 12 percent gravel by volume, 1/4 to 1 inch in diameter; strongly acid; gradual wavy boundary.

B22t—28 to 48 inches; yellowish red (5YR 4/6) gravelly loam; weak medium subangular blocky structure; friable; few thin patchy clay films on surfaces of peds; few fine roots; 30 percent gravel by volume, 1/4 inch to 2 inches in diameter; very strongly acid; gradual wavy boundary.

B23t—48 to 80 inches; yellowish red (5YR 5/8) very gravelly sandy loam with pockets and streaks of strong brown (7.5YR 5/6) gravelly loamy sand; weak medium subangular blocky structure; loose, compact in place; few thin patchy clay films on gravel, sand grains coated and bridged with clay; 75 percent gravel by volume, 1/4 inch to 2 inches in diameter; very strongly acid.

Solum thickness is more than 72 inches. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 4 to 18 inches in thickness. The Ap horizon has hue of 10YR, value of 4, and chroma of 3 or 4. The A2 horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4.

The B21t horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Texture is sandy clay loam, clay loam, or loam. The gravel content of the B22 horizon ranges from 0 to 15 percent. The B22t horizon has the same color range as the B21t horizon. Texture is gravelly sandy clay loam, gravelly clay loam, gravelly loam, gravelly sandy loam, or gravelly fine sandy loam. Gravel content ranges from 15 to 35 percent.

The B23t horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8, or it has hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. Texture is gravelly fine sandy loam, gravelly sandy loam, gravelly loam, or gravelly sandy clay loam, or their very gravelly counterparts. Gravel content of the B23t horizon ranges from 15 to 80 percent, by volume.

Portland series

The Portland series consists of somewhat poorly drained, very slowly permeable soils that formed in clayey alluvium. These level soils are on broad flats along Bayou Bartholomew and its former channels. They have a seasonal high water table in late winter and early spring. The native vegetation was mixed hardwood trees. Slopes are 0 to 1 percent.

Portland soils are geographically associated with Hebert, Perry, Rilla, and Yorktown soils. Hebert soils, which are on low natural levees adjacent to Portland soils, have a fine-silty control section and are more acid in the lower part of the subsoil. Perry soils, which are on adjacent broad flats, have lower chroma in the upper part of the cambic horizon. Rilla soils, which are on natural levees, have a fine-silty control section and are more acid in the lower part of the subsoil. Yorktown soils, which are on low ponded back swamps, are grayer and lack vertic properties.

Typical pedon of Portland silty clay, 0 to 1 percent slopes, in a cultivated field in the SW1/4NW1/4NE1/4 sec. 24, T. 16 S., R. 4 W.

Ap1—0 to 3 inches; dark grayish brown (10YR 4/2) silty clay; few fine faint grayish brown and yellowish brown mottles; moderate fine angular blocky structure; firm, sticky, plastic; common fine roots; strongly acid; abrupt wavy boundary.

Ap2—3 to 8 inches; dark brown (7.5YR 4/4) clay; common medium distinct grayish brown (10YR 5/2) mottles; moderate fine angular blocky structure; firm,

sticky, plastic; common fine roots; very strongly acid; clear wavy boundary.

B21—8 to 18 inches; reddish brown (5YR 4/4) clay; common medium prominent grayish brown (10YR 5/2) mottles; strong fine angular blocky structure; very firm, very sticky, very plastic; common fine roots; few fine pores; few slickensides; shiny faces on peds; very strongly acid; gradual wavy boundary.

B22—18 to 30 inches; reddish brown (5YR 4/4) clay; common medium distinct dark brown (10YR 3/3) mottles; moderate fine angular blocky structure; very firm, very plastic; common fine roots; few fine pores; few slickensides; shiny faces on peds; netural; clear wavy boundary.

B23—30 to 45 inches; reddish brown (5YR 4/3) clay; strong fine angular blocky structure; very firm, very plastic; few fine roots; common slickensides 4 to 6 inches wide that do not intersect; smooth shiny faces on peds; moderately alkaline; calcareous; clear wavy boundary.

C—45 to 72 inches; alternating 1- to 6-inch layers of reddish brown (5YR 4/3) silty clay and dark brown (7.5YR 4/4) silt loam; massive; silty clay is firm, silt loam is friable; few carbonate concretions; moderately alkaline; calcareous.

Solum thickness ranges from 38 to 72 inches or more. The upper 16 to 26 inches of the soil is strongly acid or very strongly acid. The lower part ranges from slightly acid to moderately alkaline. Calcareous concretions below 30 inches range from none to common.

The A horizon ranges from 2 to 17 inches in thickness. The Ap1 horizon has hue of 10YR, value of 3, 4, or 5, and chroma of 3, or it has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2. Where the value is 3, the horizon is less than 10 inches thick. Texture is silt loam or silty clay.

The Ap2 and B horizons have hue of 5YR or 7.5YR, value of 4, and chroma of 4; hue of 5YR, value of 4, and chroma of 3; or hue of 7.5YR, value of 5, and chroma of 4. The upper part of the B horizon has few to common mottles with chroma of 2 or less. Texture is clay or silty clay.

The C horizon has the same colors as the B horizon and is stratified. Depth to the stratified C horizon is 38 to 72 inches.

Providence series

The Providence series consists of moderately well drained, moderately slowly permeable soils that formed in thin deposits of windblown silts. These nearly level soils are on uplands of the loessial plains. They have a perched water table in late winter and early spring. The native vegetation is mixed hardwoods and pines. Slopes are 1 to 3 percent.

Providence soils are geographically associated with Bude soils. Bude soils, which are on lower slopes and broad flats adjacent to Providence soils, have gray mottles in the upper part of the subsoil and do not have an argillic horizon above the fragipan.

Typical pedon of Providence silt loam, 1 to 3 percent slopes, in a wooded area in the NE1/4NE1/4SE1/4 sec. 34, T. 19 S., R. 8 W.

A1—0 to 4 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—4 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; many fine and medium brown accumulations of iron and manganese oxides; strongly acid; clear smooth boundary.

B21t—10 to 16 inches; yellowish brown (10YR 5/8) silt loam; moderate medium subangular blocky structure; friable; common fine roots; then patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B22t—16 to 30 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable, slightly sticky; common fine roots; thin patchy clay films on faces of peds; common yellowish brown coatings on faces of peds and along root channels; common fine and medium brown concretions; strongly acid; clear wavy boundary.

Bx1—30 to 40 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct light brownish gray (10YR 6/2) and few fine distinct yellowish red mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; thick patchy clay films on faces of peds; few fine brown concretions; strongly acid; clear wavy boundary.

IIBx2—40 to 72 inches; yellowish brown (10YR 5/6) loam; few fine and medium distinct light brownish gray (10YR 6/2) and yellowish red (5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle; light gray silt loam between prisms; thick patchy clay films on faces of peds; few fine brown concretions; strongly acid.

Solum thickness exceeds 60 inches. Reaction is strongly acid or very strongly acid throughout. Depth to the fragipan ranges from 18 to 38 inches.

The A horizon ranges from 5 to 12 inches in thickness. The A1 horizon has hue of 10YR with value of 4 and chroma of 1 or 2, or with value of 3 and chroma of 3. The A2 and Ap horizons have hue of 10YR with value of 5 and chroma of 2, 4, or 6, or with value of 6 and chroma of 4.

The B1 and B2 horizons have hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8, or they have hue of

5YR with value of 4 and chroma of 6, or with value of 5 and chroma of 8. Texture is silt loam or silty clay loam.

The Bx and IIBx horizons have hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 6 or 8. They are mottled with gray, brown, and red or with yellow, brown, gray, and red. The upper part of the fragipan is silty clay loam or silt loam that contains evident amounts of sand. The lower part is clay loam, loam, sandy clay loam, or sandy loam.

Rilla series

The Rilla series consists of well drained, moderately permeable soils that formed in silty alluvium along Bayou Bartholomew and its former channels. These level and nearly level soils are on old natural levees. The native vegetation was mixed hardwoods. Slopes are 0 to 3 percent.

Rilla soils are geographically associated with Hebert, Perry, Portland, and Yorktown soils. Hebert soils, which are on natural levees adjacent to the Rilla soils, have gray mottles and are somewhat poorly drained. Perry and Portland soils, which are on broad flats, have a very-fine control section and are alkaline in the lower part of the subsoil. Yorktown soils, which are on adjacent low ponded swamps, have a very-fine control section and lack vertic properties.

Typical pedon of Rilla silt loam, 0 to 1 percent slopes, in a cultivated field in the SW1/4NE1/4SW1/4 sec. 16, T. 17 S., R. 4 W.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; slightly acid; abrupt smooth boundary.

B21t—6 to 18 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; thin light brown (7.5YR 6/4) silt coatings on faces of peds; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—18 to 28 inches; yellowish red (5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; thin light brown (7.5YR 6/4) silt coatings on faces of peds; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B23t—28 to 41 inches; yellowish red (5YR 4/6) silt loam; few fine faint yellowish red mottles and common light brown (7.5YR 6/4) thin silt pockets and streaks; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; strongly acid; clear smooth boundary.

IIC—41 to 72 inches; reddish brown (5YR 5/4) loam; brown (7.5YR 5/4) silt pockets up to 3/4 inch thick, reddish brown (5YR 4/3) silty clay streaks as thick as 2 inches; massive; friable; strongly acid.

Solum thickness ranges from 40 to 60 inches. Reaction ranges from slightly acid through strongly acid in the A horizon, is strongly acid or very strongly acid in the B horizon, and ranges from very strongly acid through neutral in the C horizon.

The A horizon ranges from 6 to 15 inches in thickness. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3, or it has hue of 7.5YR, value of 4 or 5, and chroma of 2.

The Bt horizon has hue of 5YR, value of 4 or 5, and chroma of 3, 4, or 6, or it has hue of 7.5YR, value of 5, and chroma of 4 or 6. Texture is silt loam or silty clay loam. Silt coatings are on major structural surfaces. The B3 horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6. Texture is silt loam or silty clay loam.

The IIC horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6, or it has hue of 7.5YR, value of 4 or 5, and chroma of 4. Texture is loam or silty clay loam.

Ruston series

The Ruston series consists of well drained, moderately permeable soils that formed in loamy marine sediments. These nearly level and gently sloping soils are on uplands of the Coastal Plain. The native vegetation was mixed hardwoods and pines. Slopes are 1 to 8 percent.

Ruston soils are geographically associated with Pikeville, Sacul, Savannah, and Smithdale soils. The gently sloping Pikeville soils, which are on uplands adjacent to Ruston soils, have gravel in the lower part of the subsoil. Nearly level Sacul soils, which are on adjacent uplands, have a clayey control section and have gray mottles in the lower part of the subsoil. Level and gently sloping Savannah soils, which are on adjacent uplands, have a fragipan and a browner subsoil. Moderately sloping Smithdale soils, which are on adjacent uplands, do not have a bisequal solum.

Typical pedon of Ruston fine sandy loam, 3 to 8 percent slopes, in a idle field in the SE1/4NW1/4NW1/4 sec. 17, T. 18 S., R. 9 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

A2—4 to 9 inches; brown (10YR 5/3) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; strongly acid; abrupt smooth boundary.

B21t—9 to 24 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; thin patchy clay films on surfaces of peds; few fine roots; 2 to 4 percent siliceous gravel by volume; strongly acid; clear smooth boundary.

B22t—24 to 46 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; 2 to 4

percent siliceous gravel by volume; strongly acid; clear smooth boundary.

B&A'2—46 to 55 inches; red (2.5YR 4/6) fine sandy loam; weak fine subangular blocky structure; friable; streaks of pale brown (10YR 6/3) fine sandy loam A'2 material that make up approximately 25 percent of the horizon; sand grains coated and bridged with clay; 2 to 4 percent siliceous gravel by volume; strongly acid; clear wavy boundary.

B'2t—55 to 80 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; 2 to 4 percent siliceous gravel by volume; strongly acid.

Solum thickness ranges from 60 to 80 inches or more. Reaction is medium acid or strongly acid in the A horizon and strongly acid or very strongly acid in the B horizon.

The A horizon ranges from 7 to 21 inches in thickness. The A horizon has hue of 10YR with value of 5 or 6 and chroma of 2, 3, or 4, or with value of 4 and chroma of 2 or 3.

The Bt horizon has hue of 2.5YR and 5YR, value of 4 or 5, and chroma of 6 or 8, or it has hue of 5YR, value of 4, and chroma of 4. Texture is fine sandy loam, loam, clay loam, or sandy clay loam. The B't horizon in some pedons is mottled with shades of gray and brown. The clay content decreases from the Bt horizon to the B&A'2 horizon, but increases in the B't horizon.

The A'2 horizon has hue of 10YR, value of 6, and chroma of 3 or 4. Texture is fine sandy loam or sandy loam in streaks and pockets that make up 50 percent of the B&A'2 horizon.

Sacul series

The Sacul series consists of moderately well drained, slowly permeable soils that formed in acid, unconsolidated, stratified loamy and clayey marine sediments. These nearly level soils are on uplands of the Coastal Plain. The native vegetation was mixed hardwoods and pines. Slopes are 1 to 3 percent.

Sacul soils are geographically associated with Ruston, Savannah, Smithdale, and Tippah soils. Ruston soils, which are on uplands adjacent to Sacul soils, have a fine-loamy control section and lack gray mottles in the lower part of the subsoil. Savannah soils, which are on adjacent nearly level and gently sloping uplands, have a fine-loamy control section and a fragipan. Smithdale soils, which are on adjacent uplands, have a fine-loamy control section and lack gray mottles in the lower part of the subsoil. Tippah soils, which are on adjacent uplands, have a fine-silty control section.

Typical pedon of Sacul fine sandy loam, 1 to 3 percent slopes, in a wooded area in the NW1/4NW1/4SW1/4 sec. 35, T. 15 S., R. 7 W.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; few fine dark accumulations of iron and manganese oxides; many roots; medium acid; abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; few dark accumulations of iron and manganese oxides; medium acid; clear smooth boundary.

B21t—7 to 19 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm, plastic; few fine dark accumulations of iron and manganese oxides; thick continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B22t—19 to 26 inches; red (2.5YR 5/6) clay; common medium distinct grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; firm, plastic; few fine and medium roots; few fine dark accumulations of iron and manganese oxides; thick continuous red (2.5YR 4/6) clay films on faces of peds; very strongly acid; diffuse boundary.

B23t—26 to 36 inches; mottled light brownish gray (10YR 6/2), red (2.5YR 4/6), and reddish brown (2.5YR 4/4) clay; moderate medium subangular blocky structure; firm, plastic; few fine and medium roots; thick continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B24t—36 to 47 inches; mottled light brownish gray (10YR 6/2) and red (2.5YR 4/8) clay loam with few small pockets of yellowish red (5YR 5/8) sand; moderate medium subangular blocky structure; friable; few fine roots; thick continuous clay films on faces of most peds; very strongly acid; clear smooth boundary.

B25t—47 to 54 inches; mottled light brownish gray (10YR 6/2) and red (2.5YR 4/8) clay loam with few small pockets of yellowish red (5YR 5/8) sand; moderate medium subangular blocky structure; friable; thick continuous clay films on faces of most peds; very strongly acid; clear smooth boundary.

C—54 to 72 inches; light brownish gray (10YR 6/2) clay loam with few thin layers of brown (10YR 5/3) silt loam; few medium distinct yellowish brown (10YR 5/8) mottles; massive; friable; very strongly acid.

Solum thickness ranges from 40 to more than 72 inches. Reaction is strongly acid or very strongly acid throughout except for the A horizon in limed areas.

The A horizon ranges from 5 to 12 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4, and chroma of 2 or 3. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The B21t horizon has hue of 2.5YR or 5YR with value of 4 and chroma of 8, or with value of 5 and chroma of 6. The B22t horizon has the same colors with mottles in shades of gray. Texture of the B21t and B22t horizons is

clay or silty clay. The B23t, B24t, and B25t horizons are mottled in shades of red, gray, and brown. These colors range from about equal in amount to either the gray or red dominant. Texture of the lower part of the Bt horizon is silty clay, clay loam, or silt loam.

The C horizon is mottled red, yellow, and gray and is stratified sandy loam and sandy clay loam or clay loam.

Savannah series

The Savannah series consists of moderately well drained, moderately slowly permeable soils that formed in loamy marine sediments. These nearly level and gently sloping soils are on uplands of the Coastal Plain. The native vegetation is mixed hardwoods and pines. Slopes are 1 to 8 percent.

Savannah soils are geographically associated with Amy, Guyton, Pheba, Pikeville, Ruston, Sacul, and Tippah soils. Amy soils, which are on lower positions of the landscape than Savannah soils, have a fine-silty control section and lack a fragipan. Guyton soils, which are on lower positions on adjacent uplands, have a fine-silty control section and lack a fragipan. Pheba soils, which are on lower positions, have a grayer subsoil and a coarse-silty control section. Pikeville soils, which are on adjacent side slopes, have gravel in the lower part of the subsoil and lack a fragipan. Ruston soils, which are on higher positions, have a redder subsoil and lack a fragipan. Sacul soils, which are on adjacent nearly level uplands, have a clayey control section and lack a fragipan. Tippah soils, which are on adjacent uplands, have a fine-silty control section and lack a fragipan.

Typical pedon of Savannah fine sandy loam, 1 to 3 percent slopes, in a wooded area in the NE1/4 SE1/4NW1/4 sec. 31, T. 15 S., R. 7 W.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—3 to 9 inches; pale brown (10YR 6/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

B2t—9 to 24 inches; yellowish brown (10YR 5/8) loam; moderate medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; few fine dark concretions; strongly acid; clear smooth boundary.

Bx1—24 to 35 inches; yellowish brown (10YR 5/6) loam; many medium distinct grayish brown (10YR 5/2) and brownish yellow (10YR 6/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, compact and brittle in about 60 percent of mass; common fine voids; thick pacthy clay films on faces of peds; light brownish gray (10YR 6/2) silt coatings on faces of prisms; few fine dark accumulations of iron and manganese oxides; very strongly acid; clear smooth boundary.

Bx2—35 to 46 inches; mottled grayish brown (10YR 5/2), yellowish brown (10YR 5/4), and strong brown (7.5YR 5/8) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, compact and brittle in about 60 percent of mass; few fine voids; thin patchy clay films on many faces of peds; light brownish gray (10YR 6/2) silt coatings on faces of peds; very strongly acid; abrupt irregular boundary.

Bx3—46 to 59 inches; mottled reddish brown (5YR 5/4), strong brown (7.5YR 5/8), and yellowish brown (10YR 5/4) sandy loam; weak coarse prismatic structure parting to moderate medium angular and subangular blocky; friable, compact and brittle in about 60 percent of mass; sand grains coated and bridged with clay; light brownish gray (10YR 6/2) silt coatings on faces of prisms; very strongly acid; clear smooth boundary.

B3—59 to 72 inches; mottled yellowish brown (10YR, 5/4, 5/8) and gray (10YR 6/1) sandy loam with pockets of pale brown (10YR 6/3) loamy sand; weak medium angular and subangular blocky structure; friable; very strongly acid.

Solum thickness ranges from 60 to more than 80 inches. Reaction is strongly acid through extremely acid throughout. Depth to the fragipan ranges from 16 to 38 inches.

The A horizon ranges from 5 to 14 inches in thickness. The A1 horizon has hue of 10YR, value of 3, and chroma of 1 or 2. The Ap and A2 horizons have hue of 10YR with value of 5 and chroma of 3, 4, or 6, or with value of 6 and chroma of 3.

The Bt horizon has hue of 7.5YR, value of 5, and chroma of 6 or 8, or it has hue of 10YR, value of 5, and chroma of 4, 6, or 8. The Bt and Bx horizons are sandy loam, sandy clay loam, or loam. The Bx horizon is mottled in shades of yellow, brown, red, and gray, or it is yellowish brown mottled with gray. The B3 horizon, where present, has the same color range as the Bx.

Smithdale series

The Smithdale series consists of well drained, moderately permeable soils that formed in thick beds of loamy marine sediments. These moderately sloping soils are on uplands of the Coastal Plain. The native vegetation was mixed hardwoods and pines. Slopes are 8 to 12 percent.

Smithdale soils are geographically associated with Pikeville, Ruston, and Sacul soils. Gently sloping Pikeville soils, which are on uplands adjacent to Smithdale soils, have more gravel in the lower part of the subsoil. Nearly level Ruston soils, which are on the adjacent uplands, have a bisequal solum. Nearly level Sacul soils, which

are on adjacent uplands, have a clayey control section and have gray mottles in the lower part of the subsoil.

Typical pedon of Smithdale fine sandy loam, 8 to 12 percent slopes, in a wooded area in the SE1/4 NE1/4NE1/4 sec. 15, T. 17 S., R. 9 W.

A1—0 to 4 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many medium and fine roots; 7 to 10 percent gravel by volume; medium acid; abrupt smooth boundary.

B1—4 to 13 inches; yellowish red (5YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; many fine roots; 7 to 10 percent gravel by volume; strongly acid; gradual wavy boundary.

B21t—13 to 32 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; 7 to 10 percent gravel by volume; strongly acid; gradual wavy boundary.

B22t—32 to 55 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; sand grains coated and bridged with clay; common pockets of uncoated sand grains; 7 to 10 percent gravel; strongly acid; gradual wavy boundary.

B23t—55 to 80 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; few pockets and streaks of uncoated sand grains; 7 to 10 percent gravel; strongly acid.

Solum thickness ranges from 60 to more than 100 inches. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 4 to 9 inches in thickness. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2, 3, or 4, or it has hue of 7.5YR, value of 4, and chroma of 4.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4, and chroma of 6 or 8, or it has hue of 5YR, value of 5, and chroma of 6. It is clay loam, sandy clay loam, or loam. The lower part of the Bt horizon has colors similar to those in the upper part except that it contains few to many pockets of uncoated sand grains. It is sandy loam, loam, or fine sandy loam.

Spadra Variant

Spadra Variant consists of well drained, moderately permeable soils that formed in loamy and sandy alluvial sediments. These nearly level soils are on low stream terraces along bottom lands. The native vegetation is mixed hardwoods and pine. Slopes are 1 to 3 percent.

Spadra Variant soils are geographically associated with Crevasse and Guyton soils. Crevasse soils, which are on level flood plains, have a sandy control section and lack an argillic horizon. Guyton soils, which are on lower positions of the flood plains and on higher upland flats, have a fine-silty control section and grayer colors.

Typical pedon of Spadra Variant fine sandy loam, occasionally flooded, in a wooded area in the SW1/4NW1/4SE1/4 sec. 13, T. 18 S., R. 10 W.

A11—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A12—3 to 10 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

B2t—10 to 31 inches; dark brown (7.5YR 4/4) loam; many fine distinct yellowish brown (10YR 5/6) pockets; weak fine and medium subangular blocky structure; friable; common fine roots; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B3—31 to 47 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine subangular blocky structure; friable; few fine roots; few sand grains coated and bridged with clay; strongly acid; gradual smooth boundary.

C—47 to 72 inches; light yellowish brown (10YR 6/4) loamy fine sand; massive; very friable; few fine roots; strongly acid.

Solum thickness is 40 to 60 inches. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 5 to 10 inches in thickness. The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The B2 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6. It is fine sandy loam, loam, or sandy clay loam.

The B3 and C horizons have hue of 10YR, value of 5 or 6, and chroma of 4 or 6. They are fine sandy loam through loamy fine sand.

Tippah series

The Tippah series consists of moderately well drained, slowly permeable soils that formed in stratified loamy and clayey marine sediments. These nearly level soils are on uplands of the Coastal Plain. The native vegetation was mixed hardwoods and pines. Slopes are 1 to 3 percent.

Tippah soils are geographically associated with Sacul and Savannah soils. Sacul soils, which are on uplands adjacent to Tippah soils, have a clayey control section. Savannah soils, which also are on adjacent uplands, have a fine-loamy control section and a fragipan.

Typical pedon of Tippah silt loam, 1 to 3 percent slopes, in a pasture in the SE1/4SE1/4SW1/4 sec. 16, T. 16 S., R. 7 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B21t—6 to 16 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—16 to 26 inches; strong brown (7.5YR 5/6) silty clay loam; few fine faint yellowish brown and red mottles; moderate medium subangular blocky structure; friable, slightly plastic; few fine roots; thick patchy clay films on faces of peds; few fine dark masses; strongly acid; gradual smooth boundary.

IIB23t—26 to 46 inches; red (2.5YR 5/6) clay; many coarse prominent gray (10YR 5/1) and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm, plastic; thick continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

IIB24t—46 to 72 inches; mottled gray (10YR 5/1), strong brown (7.5YR 5/6), and yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; firm, plastic; thick continuous clay films on faces of peds; very strongly acid.

Solum thickness exceeds 60 inches. Reaction ranges from medium acid through very strongly acid.

The A horizon ranges from 2 to 8 inches in thickness. The Ap or A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2. The A2 horizon has hue of 10YR with value of 5 and chroma of 2, 4, or 6, or with value of 6 and chroma of 3.

The B21t horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6, or it has hue of 7.5YR, value of 5, and chroma of 6 or 8. The B22t horizon has matrix colors similar to those in the B21t horizon but contains few to many mottles of brown and gray. The Bt horizon is silt loam or silty clay loam, and the upper 20 inches averages between 20 and 35 percent clay. The IIBt horizon is red to gray, or the horizon is mottled yellow, brown, red, or gray. It is silty clay loam, clay loam, sandy clay, silty clay, or clay.

Yorktown series

The Yorktown series consists of very poorly drained, very slowly permeable soils that formed in thick beds of clayey alluvium. These level soils are in low, ponded sloughs and abandoned oxbows of Bayou Bartholomew. The native vegetation was mixed hardwood trees. Slopes are 0 to 1 percent.

Yorktown soils are geographically associated with Perry, Portland, and Rilla soils. Perry and Portland soils, which are on broad flats adjacent to Yorktown soils, have vertic properties. Rilla soils, which are on adjacent natural levees, have a fine-silty control section and an argillic horizon.

Typical pedon of Yorktown silty clay, beneath 12 inches of water, in the SE1/4SW1/4SE1/4 sec. 28, T. 16 S., R. 4 W.

O1—2 to 0 inches; dark brown (7.5YR 3/2) partially decomposed twigs, leaves, and roots; medium acid; abrupt smooth boundary.

A1—0 to 7 inches; gray (5Y 5/1) silty clay; few fine prominent dark brown mottles; weak coarse subangular blocky structure; very sticky, firm; many fine roots; medium acid; clear smooth boundary.

B21g—7 to 22 inches; gray (5Y 5/1) clay; many medium prominent yellowish red (5YR 4/8) mottles; moderate coarse blocky structure; very sticky, very firm; common fine roots; common fine black masses; medium acid; clear smooth boundary.

B22g—22 to 37 inches; dark gray (5Y 4/1) clay; common fine and medium prominent yellowish red (5YR 4/6) mottles; moderate medium and coarse blocky structure; very sticky, very firm; few medium roots; common fine black masses; medium acid; clear smooth boundary.

B23g—37 to 44 inches; greenish gray (5BG 5/1) clay; many coarse prominent strong brown (7.5YR 5/6) and few coarse prominent yellowish red (5YR 5/8) mottles; weak coarse blocky structure; very sticky, very firm; few medium roots; common fine black masses; medium acid; abrupt smooth boundary.

B3—44 to 60 inches; reddish brown (5YR 4/4) clay; common fine prominent gray mottles; strong medium blocky structure parting to strong fine blocky; sticky, very firm; common fine pressure faces; greenish gray (5GY 5/1) fillings in root channels; many fine black concretions; mildly alkaline.

Solum thickness ranges from 50 to 80 inches. Depth to the B3 horizon ranges from 40 to 60 inches. The A and B2g horizons range from medium acid to neutral. The B3 horizon is mildly alkaline or moderately alkaline. Some pedons have a calcareous B3 horizon that contains few fine carbonate concretions.

The A horizon ranges from 4 to 10 inches in thickness. It has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1, or it has neutral hue with value of 4 to 6.

The B21g and B22g horizons have hue of 5Y or 10YR, value of 4, 5, or 6, and chroma of 1, or it has neutral hue with value of 4 or 5 and few to many fine or medium mottles in shades of red or brown. The B23g horizon has hue of 5G, 5Y, or 5BG, value of 5 or 6, and chroma of 1 and common or many fine to coarse mottles in shades of red and brown. The B3 horizon has hue of 5YR, value of 4 or 5, and chroma of 3 or 4, or it has hue of 2.5YR, value of 3 or 4, and chroma of 4 and is mottled in shades of gray.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*8*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 20 the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udults (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Paleudults (*Pale*, meaning old horizons, plus *udult*, the suborder of Ultisols that has a udic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Paleudults.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine-loamy, siliceous, thermic Typic Paleudults.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Formation of the soils

In this section the factors of soil formation are discussed and related to the soils in the survey area. In addition, the processes of soil formation are described.

Factors of soil formation

Soil forms as a result of weathering and other processes that act upon the regolith. The characteristics of the soil at any given point depend upon climate, living organisms, parent material, relief, and time. Each factor modifies the effects of the other four. When climate, living organisms, or any one of the five factors varies significantly, a different soil may be formed (*4*).

Climate and living organisms are the active forces in soil formation. Relief modifies the effects of climate and living organisms, mainly through its influence on temperature and runoff. Because climate, living organisms, parent material, and relief interact over a given period, time is the fifth factor of soil formation.

Climate

The climate of Ashley County is characterized by mild winters, warm summers, and generally abundant rainfall. The normal water temperature and high precipitation probably are similar to the climate under which the soils in the county formed. For additional information about the climate, refer to the section "General nature of the county."

The warm, moist climate promotes rapid soil formation, and the warm temperature encourages rapid chemical reaction. The large amount of water that moves through the soil translocates or removes dissolved or suspended materials. Organic remains decompose rapidly, and the organic acids thus produced hasten the development of clay minerals and the removal of carbonates. Because the soil freezes only to shallow depths and for short periods, soil formation continues almost the year round. The rainfall throughout the county is uniform, though its

effect is modified locally by runoff. Climate alone does not account for differences in the soils of the county.

Living organisms

Insects, bacteria, fungi, and higher plants and animals are all important in the formation of soils. Among the changes they cause are gains in organic matter and nitrogen in the soil, gains or losses in plant nutrients, and changes in structure and porosity.

On the flood plains, the trees were mainly hardwoods. Stands of baldcypress and water tupelo filled swamp areas where some of the Perry and Yorktown soils formed. On the poorly drained to well drained flood plains and natural levees, the trees were chiefly oaks, sweetgum, ash, sycamore, pecan, hickories, and baldcypress. Hebert, Ouachita, Portland, Rilla, and some of the Arkabutla, Guyton, and Perry are soils formed in these areas.

On the uplands, the forests were mainly mixed stands of shortleaf and loblolly pines, oaks, and hickories. Smithdale, Ruston, Grenada, Henry, Pheba, Sacul, Pikeville, Savannah, Tippah, and some of the Amy soils are formed in these areas.

Before Ashley county was settled, native vegetation had more influence on soil formation than had animal activity. Man is affecting the formation of the soils by clearing forests and tilling the soil; by introducing new plants; by fertilizing; by adding chemicals for insect, disease, and weed control; and by improving drainage and controlling floods. Even in many of the areas that have remained in woodland, man is influencing soil formation through such practices as selective harvesting, improving timber stands, and planting pure stands of preferred species. Changes in structure, color, organic matter and nutrient content, and thickness of the surface horizon, or plow layer, are visible results of man's influences. Many results of man's activities, however, will probably not be evident for several centuries.

Parent material

Parent material is the unconsolidated mass from which a soil forms. It determines the chemical and mineral composition of the undisturbed soil. In Ashley County, the soils formed in three broad classes of parent material: alluvium deposited by the Arkansas River, loess blown from older Mississippi Valley alluvial surfaces, and Coastal Plain sediments deposited in the Gulf of Mexico when it covered southern and eastern Arkansas.

The alluvium from the Arkansas River on the natural levees associated with Bayou Bartholomew is loamy. It has been moderately leached, and the sediments contain moderate to high amounts of bases. The sediments are predominantly clayey in the slack-water areas.

The loess mantle is silt loam and silty clay loam from about 1 foot to more than 12 feet thick. The mantle, which has been moderately leached, contained large amounts of weatherable minerals. The soils formed contain moderate amounts of bases.

The Gulf's deposits consist mainly of noncalcareous loamy and clayey sediments and include some gravelly strata. These sediments have been strongly leached, and the content of bases is low.

Relief

In Ashley County, relief influences soil formation chiefly through its effect on surface and internal drainage and erosion.

Rolling uplands lie in the western part of the county. Within this area, slopes are mainly 0 to 3 percent but range from 0 to 12 percent.

Flood plains of the smaller streams are long, narrow, and level. Slopes are less than 1 percent. The flood plains along Bayou Bartholomew are dominantly level; undulating areas are alternating long, narrow swales and low ridges. The ridges have slopes of 1 to 3 percent.

Time

The time required for formation of soil depends largely upon the other factors of soil formation. Generally, less time is required if the climate is warm and humid, the vegetation is luxuriant, and the parent material is loamy. Older soils usually show a greater degree of differentiation between horizons than do younger ones.

The soils in Ashley County have B horizons. Some soils on flood plains, such as Ouachita soils, have not been in place long enough to form an argillic horizon but have formed a cambic horizon. Others, such as Perry and Portland soils, formed in slack-water deposits of clays that shrink and swell. The mixing caused by shrinking and swelling precludes an argillic horizon. Most soils in the county have been forming long enough and in stable enough material to have argillic horizons; many have fragipans. Generally, the soils on the Coastal Plain uplands have been forming longer than the other soils in the county. They have the most strongly developed argillic horizons and are the most mature soils in Ashley County.

Processes of soil formation

The marks that the soil forming factors leave on the soil are recorded in the soil profile. The profile is a succession of layers, or horizons, that extend from the surface down to the parent material, which has been altered little by soil forming processes. The horizons differ in one or more properties, such as color, texture, structure, consistence, porosity, and reaction.

Most soil profiles contain three major horizons, called A, B, C. Young soils do not have a B horizon.

The A horizon can be the horizon of maximum accumulation of organic matter, called the A1 horizon or the surface layer, or it can be the horizon of maximum leach-

ing of dissolved or suspended materials, called the A2 horizon or the subsurface layer.

The B horizon lies immediately below the A horizon and is sometimes called the subsoil. It is a horizon of maximum accumulation of such dissolved or suspended materials as iron and clay. Commonly, the B horizon has blocky structure (*9*) and is firmer than the horizons immediately above and below it.

Below the B is the C horizon, which has been little affected by the soil-forming processes; the C horizon can be materially modified by weathering. In some young soils, the C horizon immediately underlies the A horizon and has been slightly modified by living organisms as well as by weathering.

Several processes have been active in the formation of horizons in the soils of Ashley County. Among these processes are (1) the accumulation of organic matter, (2) the leaching of calcium carbonates and bases, (3) the reduction and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most of the soils of this county, more than one of the processes have been active in soil formation.

Accumulation of organic matter in the upper part of the profile to form an A1 horizon has been important. The soils of Ashley County range from medium to low in content of organic matter.

Carbonates and bases have been leached to some degree in nearly all of the soils of the county. Soil scientists generally agree that bases are leached downward in soils before silicate clay minerals begin to move. Most of the soils in this county are moderately or strongly leached.

Reduction and transfer of iron has occurred in the somewhat poorly drained and poorly drained soils of the county. In the naturally wet soils, this process is called gleying. Gray below the surface layer indicates the reduction and loss of iron. Some horizons contain reddish or yellowish mottles and concretions derived from segregated iron. Gleying is evident in many of the soils. Among the strongly gleyed soils are Amy, Henry, and Perry soils.

In several soils of Ashley County, the translocation of clay minerals has contributed to the formation of horizons. In many places the eluviated A2 horizon has been destroyed by tillage. Where an A2 horizon occurs, its structure is blocky to platy, clay content is less than in the lower horizons, and the soil is lighter in color. Generally, clay films have accumulated in pores and on surfaces of peds in the B horizon. The soils were probably leached of carbonates and soluble salts to a great extent before translocation of silicate clay even though the content of bases is still high in many soils. Ruston and Rilla soils are examples of the effects of these processes.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim. An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Medium	6 to 9
High	More than 9

Base saturation. The degree to which material having base exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to frequent flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid. A soil having measurable amounts of calcium carbonate or magnesium carbonate.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Coarse fragments. Mineral or rock particles up to 3 inches (2 millimeters to 7.5 centimeters) in diameter.

Coarse textured (light textured) soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.

Compressible. Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is 40 or 80 inches (1 or 2 meters).

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of

regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave. Unstable walls of cuts made by earthmoving equipment. The soil sloughs easily.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake. The rapid movement of water into the soil.

Favorable. Favorable soil features for the specified use.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured (heavy textured) soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is

expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Forage. Plant material used as feed by domestic animals. Forage can be grazed or cut for hay.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Gleyed soil. A soil having one or more neutral gray horizons as a result of waterlogging and lack of oxygen. The term "gleyed" also designates gray horizons and horizons having yellow and gray mottles as a result of intermittent waterlogging.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material from 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table, which is the upper limit of saturation.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered, but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow

over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Leaching. The removal of soluble material from soil or other material by percolating water.

Light textured soil. Sand and loamy sand.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. Inadequate strength for supporting loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Moderately coarse textured (moderately light textured) soil. Sandy loam and fine sandy loam.

Moderately fine textured (moderately heavy textured) soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Plant nutrients are nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil; and carbon, hydrogen, and oxygen obtained largely from the air and water.

Pan. A compact, dense layer in a soil. A pan impedes the movement of water and the growth of roots. The word "pan" is commonly combined with other words that more explicitly indicate the nature of the layer; for example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characteristic that affects management. These differences are too small to justify separate series.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Piping. Moving water forms subsurface tunnels or pipelike cavities in the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from a semisolid to a plastic state.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Poorly graded. Refers to soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets. Surface or subsurface drainage outlets difficult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock. Soil scientists regard as soil only the part of the regolith that is modified by organisms and other soil-building forces. Most engineers describe the whole regolith, even to a great depth, as "soil."

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulates over disintegrating rock.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots. See Root zone.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Small stones. Rock fragments 3 to 10 inches (7.5 to 25 centimeters) in diameter. Small stones adversely affect the specified use.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between speci-

fied size limits. The names and sizes of separates recognized in the United States are as follows: *very coarse sand* (2.0 millimeters to 1.0 millimeter); *coarse sand* (1.0 to 0.5 millimeter); *medium sand* (0.5 to 0.25 millimeter); *fine sand* (0.25 to 0.10 millimeter); *very fine sand* (0.10 to 0.05 millimeter); *silt* (0.05 to 0.002 millimeter); and *clay* (less than 0.002 millimeter).

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use or management.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating bordering a river, a lake, or the sea. A stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Unstable fill. Risk of caving or sloughing in banks of fill material.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but the limited geographic soil area does not justify creation of a new series.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to a soil or soil material consisting of particles well distributed over a wide range in size or diameter. Such a soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

TABLES

TABLE 1.--ACREAGE OF PRINCIPAL CROPS AND PASTURE, 1969, 1974

Crops and pasture	1969	1974
Soybeans for beans	76,934	46,407
Cotton	25,614	44,607
Corn for grain	521	254
Rice	7,003	12,335
Hay	2,227	2,426
Pasture	16,149	16,006
Total	128,448	122,835

TABLE 2.--LIVESTOCK AND POULTRY, 1969, 1974

Livestock and poultry	1969	1974
All cattle and calves	12,333	12,423
Hogs and pigs	1,040	284
Broiler chickens (sold)	290,000	349,276

TABLE 3.--TEMPERATURE AND PRECIPITATION DATA

[Recorded from 1951 to 1975 at Crossett, Arkansas]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	56.2	34.2	45.2	78	11	48	4.84	2.38	6.84	8	.7
February---	60.9	36.2	48.6	80	13	93	4.86	2.68	6.64	7	.4
March------	68.2	42.3	55.3	87	22	236	5.46	2.70	7.70	8	.2
April------	77.2	51.4	64.3	90	30	429	5.68	3.11	7.78	7	.0
May--------	83.8	58.8	71.3	94	40	660	4.96	2.10	7.27	7	.0
June-------	89.8	66.0	77.8	98	50	834	4.02	1.17	6.32	6	.0
July-------	92.8	69.3	81.1	102	57	964	4.81	2.90	6.51	7	.0
August-----	92.5	68.4	80.5	102	56	946	3.71	1.62	5.40	6	.0
September--	87.2	62.8	75.0	98	44	750	4.28	1.61	6.43	5	.0
October----	78.8	51.0	64.9	94	31	462	2.57	.71	4.07	4	.0
November---	66.3	41.6	54.0	84	20	155	4.47	2.51	6.06	6	.0
December---	57.9	36.1	47.0	77	13	66	5.18	2.93	7.01	8	.1
Yearly:											
Average--	76.0	51.5	63.8	---	---	---	---	---	---	---	---
Extreme--	---	---	---	103	7	---	---	---	---	---	---
Total----	---	---	---	---	---	5,643	54.84	43.55	65.52	79	1.4

[1]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 4.--FREEZE DATES IN SPRING AND FALL

[Recorded from 1951 to 1975 at Crossett, Arkansas]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 19	March 30	April 16
2 years in 10 later than--	March 12	March 24	April 12
5 years in 10 later than--	February 26	March 14	April 4
First freezing temperature in fall:			
1 year in 10 earlier than--	November 3	October 28	October 22
2 years in 10 earlier than--	November 11	November 2	October 25
5 years in 10 earlier than--	November 26	November 13	November 2

TABLE 5.--GROWING SEASON

[Recorded from 1951 to 1975 at Crossett, Arkansas]

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10--	240	218	194
8 years in 10--	251	227	200
5 years in 10--	273	243	211
2 years in 10--	294	260	223
1 year in 10---	305	269	229

TABLE 6.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1	Amy silt loam, 0 to 1 percent slopes	20,540	3.5
2	Arkabutla silt loam, frequently flooded	33,540	5.6
3	Bude silt loam, 0 to 2 percent slopes	18,300	3.1
4	Calhoun silt loam, 0 to 1 percent slopes	15,475	2.6
5	Calloway silt loam, 0 to 1 percent slopes	49,120	8.4
6	Calloway silt loam, 1 to 3 percent slopes	49,710	8.5
7	Crevasse soils, frequently flooded	555	0.1
8	Crowley silt loam, 0 to 1 percent slopes	1,090	0.2
9	Fluvaquents, frequently flooded	3,025	0.5
10	Grenada silt loam, 1 to 3 percent slopes	32,920	5.5
11	Grenada silt loam, 3 to 8 percent slopes	21,960	3.7
12	Grenada silt loam, 8 to 12 percent slopes	12,590	2.1
13	Guyton silt loam, 0 to 1 percent slopes	14,220	2.4
14	Guyton soils, frequently flooded	46,330	7.8
15	Hebert silt loam, 0 to 1 percent slopes	36,560	6.2
16	Henry silt loam, 0 to 1 percent slopes	28,160	4.7
17	Lafe silt loam, 0 to 1 percent slopes	755	0.1
18	Ouachita silt loam, frequently flooded	10,560	1.8
19	Perry clay, 0 to 1 percent slopes	42,375	7.1
20	Pheba silt loam, 0 to 2 percent slopes	17,875	3.0
21	Pikeville fine sandy loam, 3 to 8 percent slopes	865	0.1
22	Portland silt loam, 0 to 1 percent slopes	2,375	0.4
23	Portland silty clay, 0 to 1 percent slopes	28,145	4.7
24	Providence silt loam, 1 to 3 percent slopes	3,200	0.5
25	Rilla silt loam, 0 to 1 percent slopes	42,375	7.1
26	Rilla silt loam, undulating	5,835	1.0
27	Ruston fine sandy loam, 1 to 3 percent slopes	4,250	0.7
28	Ruston fine sandy loam, 3 to 8 percent slopes	4,875	0.8
29	Sacul fine sandy loam, 1 to 3 percent slopes	2,285	0.4
30	Savannah fine sandy loam, 1 to 3 percent slopes	18,545	3.1
31	Savannah fine sandy loam, 3 to 8 percent slopes	4,770	0.8
32	Smithdale fine sandy loam, 8 to 12 percent slopes	405	0.1
33	Spadra Variant fine sandy loam, occasionally flooded	1,255	0.2
34	Tippah silt loam, 1 to 3 percent slopes	8,430	1.4
35	Yorktown silty clay	4,625	0.8
	Water	6,025	1.0
	Total	593,920	100.0

TABLE 7.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Cotton lint	Soybeans	Rice	Bahiagrass	Common bermudagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*
1------------------------ Amy	---	25	---	7.5	6.5	---
2------------------------ Arkabutla	---	30	---	7.5	6.0	7.0
3------------------------ Bude	625	30	---	---	6.0	8.0
4------------------------ Calhoun	400	30	120	6.5	5.0	7.0
5------------------------ Calloway	650	35	120	---	6.0	8.0
6------------------------ Calloway	650	35	120	---	6.5	8.5
7------------------------ Crevasse	---	---	---	---	---	---
8------------------------ Crowley	475	30	130	7.5	5.5	7.0
9**. Fluvaquents						
10----------------------- Grenada	600	35	---	---	---	8.0
11----------------------- Grenada	550	30	---	---	---	7.5
12----------------------- Grenada	---	---	---	---	---	6.5
13, 14------------------- Guyton	---	25	---	8.0	6.5	---
15----------------------- Hebert	775	35	---	---	7.0	---
16----------------------- Henry	500	30	120	---	5.5	7.0
17----------------------- Lafe	---	---	---	---	3.5	---
18----------------------- Ouachita	---	30	---	7.5	7.0	7.0
19----------------------- Perry	500	35	130	---	6.5	8.5
20----------------------- Pheba	575	30	---	8.0	---	7.0
21----------------------- Pikeville	---	---	---	6.0	---	5.0
22***-------------------- Portland	650	35	130	---	7.5	9.5

See footnotes at end of table.

TABLE 7.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Cotton lint	Soybeans	Rice	Bahiagrass	Common bermudagrass	Tall fescue
	Lb	Bu	Bu	AUM*	AUM*	AUM*
23*** Portland	600	30	130	---	7.0	9.0
24 Providence	700	35	---	8.5	---	8.5
25 Rilla	900	40	---	9.0	8.5	9.0
26 Rilla	800	35	---	9.0	8.0	9.0
27 Ruston	650	30	---	9.5	5.5	---
28 Ruston	600	25	---	8.0	5.5	---
29 Sacul	---	25	---	7.0	6.0	---
30 Savannah	600	35	---	9.0	---	8.0
31 Savannah	550	30	---	9.0	---	7.5
32 Smithdale	---	25	---	6.5	5.0	7.0
33 Spadra Variant	---	30	---	---	7.0	8.0
34 Tippah	600	35	---	9.0	8.0	8.0
35 Yorktown	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

*** Yields are for areas protected from flooding.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available. Site index was calculated at age 30 for eastern cottonwood, at age 35 for American sycamore, and at age 50 for all other species]

Map symbol and soil name	Woodland suitability group	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
1 Amy	2w9	Slight	Severe	Severe	Loblolly pine Shortleaf pine Sweetgum	90 80 90	Loblolly pine sweetgum.
2 Arkabutla	1w9	Slight	Severe	Moderate	Cherrybark oak Eastern cottonwood Green ash Loblolly pine Nuttall oak Sweetgum Water oak	105 110 95 100 110 100 100	Cherrybark oak, eastern cottonwood, green ash, loblolly pine, sweetgum, American sycamore.
3 Bude	2w8	Slight	Moderate	Slight	Cherrybark oak Loblolly pine Sweetgum	90 90 90	Cherrybark oak, Shumard oak, loblolly pine, sweetgum.
4 Calhoun	4w9	Slight	Severe	Moderate	Loblolly pine Shortleaf pine Sweetgum	75 --- ---	Loblolly pine.
5, 6 Calloway	3w8	Slight	Moderate	Slight	Cherrybark oak Loblolly pine Shortleaf pine Sweetgum Water oak	80 80 70 80 80	Loblolly pine, sweetgum.
7* Crevasse	2s9	Slight	Moderate	Severe	Loblolly pine Sweetgum White oak Eastern cottonwood American sycamore	90 90 90 100 ---	Loblolly pine, eastern cottonwood.
8 Crowley	4w9	Slight	Severe	Moderate	Loblolly pine Shortleaf pine Sweetgum Water oak Willow oak Cherrybark oak	75 65 75 75 75 75	Loblolly pine, sweetgum, water oak, Shumard oak.
9 Flavaquents	2w6	Slight	Severe	Moderate	Green ash Eastern cottonwood Sweet gum	80 100 90	Green ash, eastern cottonwood, sweetgum.
10, 11, 12 Grenada	3o7	Slight	Slight	Slight	Cherrybark oak Southern red oak Loblolly pine Shortleaf pine Sweetgum	85 80 85 75 80	Cherrybark oak, Shumard oak, water oak, loblolly pine, white oak, shortleaf pine, sweetgum.
13, 14* Guyton	2w9	Slight	Severe	Moderate	Loblolly pine Sweetgum Green ash Southern red oak Water oak	90 --- --- --- ---	Loblolly pine, sweetgum.

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Woodland suitability group	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
15 Hebert	2w5	Slight	Moderate	Slight	Green ash Eastern cottonwood Cherrybark oak Sweetgum Pecan Water oak American sycamore	--- 96 95 90 --- 90 ---	Eastern cottonwood, American sycamore.
16 Henry	3w9	Slight	Severe	Severe	Sweetgum Loblolly pine Willow oak Water oak	80 80 80 80	Shumard oak, water oak, loblolly pine, sweetgum.
18 Ouachita	1w8	Slight	Moderate	Slight	Loblolly pine Sweetgum Eastern cottonwood	100 100 100	Loblolly pine, sweetgum, Nuttall oak, American sycamore, eastern cottonwood.
19 Perry	2w6	Slight	Severe	Moderate	Sweetgum Eastern cottonwood Green ash Water oak Cherrybark oak Pecan	90 90 80 80 -- --	Eastern cottonwood, sweetgum.
20 Pheba	2w8	Slight	Moderate	Slight	Loblolly pine Shortleaf pine Sweetgum	90 80 90	Loblolly pine.
21 Pikeville	3o1	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine.
22, 23 Portland	2w6	Slight	Severe	Moderate	Green ash Eastern cottonwood Sweetgum	80 100 90	Green ash, eastern cottonwood, sweetgum.
24 Providence	3o7	Slight	Slight	Slight	Loblolly pine Shortleaf pine Sweetgum	84 64 85	Loblolly pine, Shumard oak, sweetgum.
25, 26 Rilla	2o4	Slight	Slight	Slight	Eastern cottonwood Cherrybark oak Nuttall oak Sweetgum Pecan American sycamore	100 100 86 95 --- ---	Eastern cottonwood, American sycamore.
27, 28 Ruston	3o1	Slight	Slight	Slight	Loblolly pine Shortleaf pine	84 75	Loblolly pine.
29 Sacul	3c2	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	80 70	Loblolly pine, shortleaf pine.
30, 31 Savannah	3o7	Slight	Slight	Slight	Loblolly pine Shortleaf pine Southern red oak	81 76 75	Loblolly pine.
32 Smithdale	3o1	Slight	Slight	Slight	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
33 Spadra Variant	2o7	Slight	Slight	Slight	Shortleaf pine Southern red oak Eastern redcedar	80 80 60	Loblolly pine, shortleaf pine, black walnut, black locust, southern red oak, eastern redcedar.

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Woodland suitability group	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
34----------------- Tippah	3o7	Slight	Slight	Slight	Cherrybark oak------ Loblolly pine------- Sweetgum------------	80 80 85	Cherrybark oak, loblolly pine, sweetgum.
35----------------- Yorktown	4w9	Slight	Severe	Severe	Baldcypress--------- Water tupelo-------- Water hickory------- Green ash-----------	70 --- --- ---	Baldcypress, green ash, water tupelo.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1 Amy	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
2 Arkabutla	Severe: wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: low strength, floods.	Severe floods.
3 Bude	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness, low strength.	Severe: wetness.
4 Calhoun	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
5, 6 Calloway	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Moderate: wetness.
7* Crevasse	Severe: cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
8 Crowley	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
9*. Fluvaquents						
10 Grenada	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
11 Grenada	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Moderate: wetness.
12 Grenada	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope.
13 Guyton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
14* Guyton	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
15 Hebert	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
16 Henry	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
17 Lafe	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: excess sodium, wetness.
18 Ouachita	Moderate: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: low strength, floods.	Severe: floods.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
19---------------- Perry	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness, too clayey.
20---------------- Pheba	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
21---------------- Pikeville	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Moderate------- low strength.	Moderate: droughty.
22---------------- Portland	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
23---------------- Portland	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness, too clayey.
24---------------- Providence	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
25, 26------------ Rilla	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
27---------------- Ruston	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: low strength.	Slight.
28---------------- Ruston	Slight---------	Slight---------	Slight---------	Moderate: slope.	Moderate: low strength.	Slight.
29---------------- Sacul	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
30---------------- Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
31---------------- Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
32---------------- Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
33---------------- Spadra Variant	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
34---------------- Tippah	Moderate: too clayey, wetness.	Moderate: shrink-swell.	Severe: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
35---------------- Yorktown	Severe: ponding.	Severe: floods, ponding, shrink-swell.	Severe: floods, ponding, shrink-swell.	Severe: floods, ponding, shrink-swell.	Severe: low strength, ponding, floods.	Severe: floods, ponding.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1-------------------- Amy	Severe: percs slowly, wetness.	Slight-----------	Severe: wetness.	Severe: wetness.	Poor: wetness.
2-------------------- Arkabutla	Severe: floods, wetness.	Moderate: seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Fair: too clayey.
3-------------------- Bude	Severe: percs slowly, wetness.	Slight-----------	Moderate: wetness, percs slowly.	Moderate: wetness.	Fair: too clayey.
4-------------------- Calhoun	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
5-------------------- Calloway	Severe: percs slowly, wetness.	Slight-----------	Moderate: wetness, percs slowly.	Moderate: wetness.	Good.
6-------------------- Calloway	Severe: percs slowly, wetness.	Moderate: slope.	Moderate: wetness, percs slowly.	Moderate: wetness.	Good.
7*------------------- Crevasse	Severe: floods.	Severe: floods.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Poor: seepage, too sandy.
8-------------------- Crowley	Severe: percs slowly, wetness.	Slight-----------	Severe: too clayey, wetness.	Severe: wetness.	Poor: too clayey.
9*------------------- Fluvaquents	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Fair: wetness.
10, 11--------------- Grenada	Severe: percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Good.
12------------------- Grenada	Severe: percs slowly, slope.	Severe: slope.	Moderate: wetness.	Moderate: wetness.	Fair: slope.
13------------------- Guyton	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
14*------------------ Guyton	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
15------------------- Hebert	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey.
16------------------- Henry	Severe: percs slowly, wetness.	Slight-----------	Severe: percs slowly, wetness.	Severe: wetness.	Poor: wetness.
17------------------- Lafe	Severe: percs slowly, wetness.	Slight-----------	Moderate: too clayey, wetness.	Moderate: wetness.	Poor: hard to pack, thin layer.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
18------------------ Ouachita	Severe: floods, percs slowly.	Severe: floods.	Severe: floods.	Severe: floods.	Fair: too clayey.
19------------------ Perry	Severe: percs slowly, wetness.	Slight-----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey.
20------------------ Pheba	Severe: wetness, percs slowly.	Slight-----------	Severe: wetness.	Severe: wetness.	Fair: thin layer.
21------------------ Pikeville	Slight-----------	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer, small stones.
22, 23-------------- Portland	Severe: percs slowly, wetness.	Slight-----------	Severe: too clayey, wetness.	Severe: wetness.	Poor: too clayey, wetness.
24------------------ Providence	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
25, 26-------------- Rilla	Moderate: percs slowly, wetness.	Moderate: seepage.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
27, 28-------------- Ruston	Slight-----------	Moderate: seepage, slope.	Slight-----------	Slight-----------	Good.
29------------------ Sacul	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey.
30, 31-------------- Savannah	Severe: percs slowly.	Moderate: slope.	Slight-----------	Slight-----------	Good.
32------------------ Smithdale	Moderate: slope.	Severe: seepage, slope.	Slight-----------	Moderate: slope.	Fair: slope.
33------------------ Spadra Variant	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Good.
34------------------ Tippah	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Severe: wetness.	Poor: too clayey.
35------------------ Yorktown	Severe: floods, ponding.	Severe: floods, ponding.	Severe: floods, ponding.	Severe: floods, ponding.	Poor: too clayey, ponding.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1 Amy	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
2 Arkabutla	Poor: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
3 Bude	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
4 Calhoun	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
5, 6 Calloway	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
7* Crevasse	Good	Good	Unsuited: excess fines.	Poor: too sandy.
8 Crowley	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer, wetness.
9* Fluvaquents	Fair: low strength.	Unuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
10, 11, 12 Grenada	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
13, 14* Guyton	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
15 Hebert	Fair: low strength, shrink-swell, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
16 Henry	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
17 Lafe	Poor: area reclaim, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: area reclaim, excess sodium, thin layer.
18 Ouachita	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
19 Perry	Poor: wetness, low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, too clayey.
20 Pheba	Fair: low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
21 Pikeville	Fair: low strength.	Unsuited: excess fines, small stones.	Fair: excess fines.	Fair: small stones.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
22, 23 Portland	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
24 Providence	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
25, 26 Rilla	Fair: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
27, 28 Ruston	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
29 Sacul	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer, too clayey.
30, 31 Savannah	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
32 Smithdale	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
33 Spadra Variant	Fair: low strength.	Poor: excess fines.	Poor: excess fines.	Good.
34 Tippah	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
35 Yorktown	Poor: wetness, low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
1----------------- Amy	Slight---------	Severe: wetness.	Percs slowly.	Percs slowly, wetness, erodes easily.	Not needed-----	Percs slowly, wetness, erodes easily.
2----------------- Arkabutla	Moderate: seepage.	Moderate: piping.	Cutbanks cave, floods.	Erodes easily, floods, slow intake.	Erodes easily, piping, wetness.	Erodes easily.
3----------------- Bude	Slight---------	Moderate: piping.	Cutbanks cave, percs slowly, wetness.	Erodes easily, wetness.	Not needed-----	Erodes easily, wetness.
4----------------- Calhoun	Slight---------	Moderate: piping.	Percs slowly, cutbanks cave.	Wetness, percs slowly, erodes easily.	Not needed-----	Wetness, erodes easily.
5, 6-------------- Calloway	Slight---------	Moderate: piping, hard to pack.	Cutbanks cave, percs slowly.	Percs slowly, erodes easily, slope.	Percs slowly, erodes easily, piping.	Percs slowly, erodes easily, slope.
7*---------------- Crevasse	Severe: seepage.	Severe: seepage, piping, hard to pack.	Not needed-----	Fast intake, seepage, floods.	Piping---------	Droughty.
8----------------- Crowley	Slight---------	Moderate: compressible.	Percs slowly---	Slow intake, percs slowly, erodes easily.	Not needed-----	Erodes easily, wetness.
9*---------------- Fluvaquents	Slight---------	Moderate: hard to pack.	Floods---------	Floods---------	Not needed-----	Favorable.
10, 11------------ Grenada	Slight---------	Moderate: piping.	Percs slowly---	Slow intake, erodes easily.	Erodes easily--	Erodes easily, slope.
12---------------- Grenada	Slight---------	Moderate: piping.	Percs slowly, slope.	Slow intake, erodes easily.	Slope, erodes easily.	Erodes easily, slope.
13---------------- Guyton	Slight---------	Moderate: hard to pack.	Cutbanks cave, percs slowly.	Percs slowly, erodes easily.	Not needed-----	Wetness, erodes easily.
14*--------------- Guyton	Slight---------	Moderate: hard to pack.	Cutbanks cave, floods, percs slowly.	Percs slowly, erodes easily. floods.	Not needed-----	Wetness, erodes easily.
15---------------- Hebert	Moderate: seepage.	Slight---------	Favorable------	Erodes easily--	Not needed-----	Erodes easily.
16---------------- Henry	Slight---------	Moderate: piping.	Percs slowly, poor outlets.	Rooting depth, erodes easily.	Not needed-----	Erodes easily, wetness.
17---------------- Lafe	Slight---------	Moderate: hard to pack, piping.	Cutbanks cave, excess sodium, percs slowly.	Droughty, excess sodium, slow intake.	Percs slowly, wetness.	Excess sodium, percs slowly, wetness.
18---------------- Ouachita	Moderate: seepage.	Moderate: piping, hard to pack.	Not needed-----	Floods---------	Not needed-----	Erodes easily.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and Soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
19 Perry	Slight	Moderate: hard to pack.	Percs slowly	Slow intake, wetness, percs slowly.	Not needed	Wetness, percs slowly.
20 Pheba	Moderate: seepage.	Moderate: piping.	Percs slowly	Slow intake, wetness.	Not needed	Erodes easily.
21 Pikeville	Severe: seepage.	Severe: seepage, piping.	Not needed	Erodes easily, slope, fast intake.	Erodes easily	Erodes easily, slope.
22, 23 Portland	Slight	Moderate: hard to pack.	Percs slowly	Slow intake, wetness, percs slowly.	Not needed	Wetness, percs slowly.
24 Providence	Slight	Moderate: piping.	Cutbanks cave, percs slowly.	Erodes easily, percs slowly, slope.	Erodes easily, percs slowly, piping.	Erodes easily, percs slowly, slope.
25 Rilla	Moderate: seepage.	Slight	Not needed	Favorable	Not needed	Favorable.
26 Rilla	Moderate: seepage.	Slight	Not needed	Complex slope	Not needed	Favorable.
27 Ruston	Moderate: seepage.	Slight	Not needed	Slope	Favorable	Favorable.
28 Ruston	Moderate: seepage.	Slight	Not needed	Slope	Favorable	Slope.
29 Sacul	Slight	Moderate: hard to pack.	Not needed	Erodes easily, slow intake, slope.	Erodes easily, percs slowly.	Erodes easily, percs slowly, slope.
30, 31 Savannah	Moderate: seepage.	Moderate: piping.	Percs slowly, slope.	Percs slowly	Percs slowly, erodes easily.	Percs slowly.
32 Smithdale	Severe: seepage.	Moderate: piping.	Not needed	Fast intake, seepage, complex slope.	Slope	Slope.
33 Spadra Variant	Severe: seepage.	Moderate: piping, hard to pack.	Not needed	Floods	Not needed	Erodes easily.
34 Tippah	Slight	Moderate: wetness, piping.	Cutbanks cave, percs slowly, slope.	Percs slowly, slope.	Erodes easily, percs slowly, slope.	Erodes easily, percs slowly, slope.
35 Yorktown	Slight	Severe: ponding.	Floods, ponding, percs slowly.	Floods, slow intake, ponding.	Not needed	Not needed.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
1 Amy	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
2 Arkabutla	Severe: floods.	Moderate: floods, wetness.	Severe: floods.	Moderate: floods, wetness.
3 Bude	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
4 Calhoun	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.
5, 6 Calloway	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
7* Crevasse	Severe: floods, too sandy.	Severe: too sandy, floods.	Severe: floods, too sandy.	Severe: too sandy.
8 Crowley	Severe: wetness, percs slowly.	Moderate: wetness.	Severe: wetness, percs slowly.	Severe: wetness.
9* Fluvaquents	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
10, 11 Grenada	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, slope, wetness.	Slight.
12 Grenada	Moderate: percs slowly, wetness.	Moderate: slope, wetness.	Severe: slope, percs slowly, wetness.	Slight.
13 Guyton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
14* Guyton	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
15 Hebert	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
16 Henry	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.
17 Lafe	Severe: dusty, percs slowly, wetness.	Severe: wetness.	Severe: dusty, percs slowly, wetness.	Severe: wetness.
18 Ouachita	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
19 Perry	Severe: wetness, percs slowly, too clayey.	Severe: too clayey.	Severe: wetness, percs slowly, too clayey.	Severe: wetness, too clayey.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
20 Pheba	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
21 Pikeville	Slight	Slight	Severe: slope.	Slight.
22 Portland	Severe: percs slowly, too clayey, wetness.	Severe: wetness.	Severe: wetness, too clayey, percs slowly.	Severe: wetness.
23 Portland	Severe: percs slowly, too clayey, wetness.	Severe: too clayey, wetness.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.
24 Providence	Slight	Slight	Moderate: slope.	Slight.
25 Rilla	Slight	Slight	Slight	Slight.
26 Rilla	Slight	Slight	Moderate: slope.	Slight.
27, 28 Ruston	Slight	Slight	Moderate: slope.	Slight.
29 Sacul	Moderate: percs slowly.	Slight	Moderate: slope, percs slowly.	Slight.
30, 31 Savannah	Slight	Slight	Moderate: slope.	Slight.
32 Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
33 Spadra Variant	Moderate: floods.	Moderate: floods.	Moderate: floods, slope.	Slight.
34 Tippah	Moderate: percs slowly.	Slight	Moderate: percs slowly, slope.	Slight:
35 Yorktown	Severe: floods, ponding.	Severe: floods, ponding.	Severe: floods, ponding.	Severe: ponding.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
1 Amy	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Good	Good.
2 Arkabutla	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3 Bude	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
4 Calhoun	Poor	Fair	Fair	Good	---	Good	Good	Fair	Fair	Good.
5 Calloway	Fair	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
6 Calloway	Fair	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
7* Crevasse	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
8 Crowley	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
9*. Fluvaquents										
10, 11 Grenada	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
12 Grenada	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
13, 14* Guyton	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
15 Hebert	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
16 Henry	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
17 Lafe	Very poor.	Very poor.	Poor	Poor	Poor	Poor	Good	Very poor.	Poor	Fair.
18 Ouachita	Poor	Fair	Fair	Good	Poor	Good	Fair	Fair	Good	Fair.
19 Perry	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
20 Pheba	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
21 Pikeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
22 Portland	Good	Good	Good	Good	---	Good	Good	Good	Good	Good.

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
23 Portland	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
24 Providence	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
25, 26 Rilla*	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
27 Ruston	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
28 Ruston	Fair	Good	Good	---	Good	Very poor.	Very poor.	Good	Good	Very poor.
29 Sacul	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
30 Savannah	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
31 Savannah	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
32 Smithdale	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
33 Spadra Variant	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
34 Tippah	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
35 Yorktown	Very poor.	Very poor.	Very poor.	Poor	Poor	Poor	Good	Very poor.	Very poor.	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1-------------------- Amy	0-12	Silt loam--------	ML, CL-ML	A-4	0	100	95-100	90-100	70-95	<30	NP-5
	12-54	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	95-100	95-100	85-95	25-40	8-20
	54-72	Silt loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	95-100	80-95	55-90	<35	12-20
2-------------------- Arkabutla	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-95	25-35	7-15
	8-72	Silty clay loam, loam, silt loam.	CL	A-6, A-7	0	100	100	85-100	70-90	30-45	12-25
3-------------------- Bude	0-32	Silt loam--------	CL	A-6	0	100	100	95-100	85-96	30-40	11-25
	32-45	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	84-98	35-50	15-30
	45-72	Silt loam, clay loam, silty clay loam.	CL, CH	A-7, A-6	0	100	100	95-100	75-90	35-65	15-40
4-------------------- Calhoun	0-14	Silt loam--------	CL-ML, ML, CL	A-4	0	100	100	100	95-100	<31	NP-10
	14-50	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	95-100	30-45	11-24
	50-72	Silt loam--------	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	25-40	5-20
5, 6--------------- Calloway	0-25	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	90-100	25-35	5-15
	25-50	Silt loam, silty clay loam.	CL	A-6	0	100	100	100	90-95	30-40	12-20
	50-72	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	100	90-100	25-35	5-15
7*------------------ Crevasse	0-4	Loamy fine sand	SM	A-2	0	100	95-100	60-100	15-30	---	NP
	4-72	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	50-100	5-20	---	NP
8-------------------- Crowley	0-25	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	80-100	<30	NP-10
	25-49	Silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-100	41-60	20-35
	49-72	Silty clay loam, silty clay.	CL, CH	A-7, A-6	0	100	100	95-100	85-100	38-60	18-35
9*. Fluvaquents											
10, 11, 12---------- Grenada	0-7	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	90-100	<30	NP-6
	7-22	Silt loam, silty clay loam.	CL	A-6, A-4	0	100	100	100	90-100	27-40	8-19
	22-26	Silt loam--------	CL-ML, CL	A-4	0	100	100	100	90-100	20-30	5-10
	26-72	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	32-45	13-24
13, 14*------------- Guyton	0-14	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	14-77	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	95	90-100	75-95	26-40	6-18
	77-80	Silt loam, silty clay loam, clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	65-95	<40	NP-18

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
15----------------- Hebert	0-8	Silt loam-------	ML, CL-ML	A-4	0	100	100	100	65-100	<27	NP-7
	8-39	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	85-100	31-45	11-22
	39-72	Stratified very fine sandy loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	60-100	22-40	3-18
16----------------- Henry	0-12	Silt loam-------	ML, CL-ML, CL	A-4	0	100	100	95-100	90-100	<34	NP-9
	12-24	Silt loam-------	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	26-40	3-15
	24-47	Silty clay loam, silt loam.	ML, CL	A-4, A-6, A-7	0	100	100	95-100	90-100	30-42	9-16
	47-72	Silt, silt loam	ML, CL-ML, CL	A-4	0	100	100	95-100	90-100	25-32	3-10
17----------------- Lafe	0-8	Silt loam-------	ML, CL-ML, CL	A-4	0	100	100	95-100	90-100	<30	NP-10
	8-49	Silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	100	100	95-100	90-100	25-45	8-25
	49-72	Silt loam, silty clay loam, fine sandy loam.	ML, CL, SM	A-4, A-6	0	100	100	90-100	45-100	20-45	1-25
18----------------- Ouachita	0-20	Silt loam-------	ML, CL, CL-ML	A-4, A-6	0	100	100	85-100	75-95	<30	NP-12
	20-68	Silt loam, loam, silty clay loam.	ML, CL-ML	A-4, A-6	0	100	100	85-100	80-100	25-40	5-20
	68-72	Fine sandy loam, silt loam.	SM, ML, CL-ML, SM-SC	A-4, A-2	0	100	100	50-95	20-75	<30	NP-5
19----------------- Perry	0-6	Clay------------	CH, CL	A-7	0	100	100	100	95-100	45-75	22-45
	6-24	Clay------------	CH	A-7	0	100	100	100	95-100	60-80	33-50
	24-72	Clay------------	CH, CL	A-7	0	90-100	85-100	75-100	70-100	45-80	22-50
20----------------- Pheba	0-8	Silt loam-------	ML, CL, CL-ML	A-4	0	100	100	85-100	55-90	<25	NP-8
	8-28	Silt loam, loam	ML, CL, CL-ML	A-4	0	100	100	90-100	75-90	<25	NP-8
	28-72	Silt loam, silty clay loam.	CL	A-6, A-4	0	100	100	90-100	75-95	30-40	11-16
21----------------- Pikeville	0-15	Fine sandy loam	SM, ML	A-4	0	90-100	90-100	50-85	36-60	<30	NP-4
	15-28	Sandy clay loam, loam, clay loam.	SC, CL, SM-SC	A-4, A-6	0	80-100	65-100	60-90	36-60	20-40	4-17
	28-48	Gravelly sandy loam, gravelly loam, gravelly sandy clay loam.	SC, SM, SM-SC	A-1 A-2, A-4, A-6	0	60-90	50-85	45-75	20-45	20-40	2-18
	48-80	Very gravelly sandy loam, very gravelly loamy sand, very gravelly sandy clay loam	GW-GM, GM, SW-SM, SM	A-1, A-2, A-4, A-6	---	35-75	20-65	15-55	9-30	20-45	2-16

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
22----------------- Portland	0-6	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	100	100	95-100	95-100	20-35	2-15
	6-18	Clay-------------	CH	A-7	0	100	100	95-100	95-100	60-90	40-60
	18-45	Clay-------------	CH	A-7	0	100	98-100	95-100	95-100	60-90	40-60
	45-72	Stratified silt loam to clay.	CH, CL	A-7, A-6	0	100	98-100	95-100	85-100	35-90	20-55
23----------------- Portland	0-3	Silty clay-------	CH	A-7	0	100	100	95-100	95-100	55-80	35-55
	3-18	Clay-------------	CH	A-7	0	100	100	95-100	95-100	60-90	40-60
	18-45	Clay-------------	CH	A-7	0	100	98-100	95-100	95-100	60-90	40-60
	45-72	Stratified silt loam to clay.	CH, CL	A-7, A-6	0	100	98-100	95-100	85-100	35-90	20-55
24----------------- Providence	0-10	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	10-30	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	30-40	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	40-72	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
25, 26------------- Rilla	0-6	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<31	NP-10
	6-41	Silty clay loam, clay loam, silt loam.	CL	A-6, A-4	0	100	100	100	90-100	28-40	8-17
	41-72	Loam, silty clay loam, silty clay.	CL-ML, CL	A-4, A-6, A-7	0	100	100	100	75-100	23-45	4-21
27, 28------------- Ruston	0-9	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	9-46	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-18
	46-55	Fine sandy loam, sandy loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<27	NP-7
	55-80	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-18
29----------------- Sacul	0-7	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	80-100	40-65	<20	NP-3
	7-36	Clay, silty clay	CH, MH, CL	A-7	0	95-100	90-100	85-95	80-90	45-70	20-40
	36-72	Silty clay loam, silt loam, clay loam.	CL, CH, SC	A-6, A-7, A-4	0	95-100	90-100	85-100	40-90	25-55	8-32
30, 31------------- Savannah	0-9	Fine sandy loam	SM, ML	A-2-4, A-4	0	100	100	60-85	30-55	<25	NP-4
	9-24	Sandy clay loam, sandy loam, loam.	CL, SC, CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-40	7-19
	24-59	Loam, sandy loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-43	7-19
	59-72	Sandy loam, loam, sandy clay loam.	CL, SC CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-40	7-19

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
32----------------- Smithdale	0-13	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	13-32	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	32-80	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
33----------------- Spadra Variant	0-10	Fine sandy loam	ML, SM	A-2, A-4	0	85-100	80-100	65-80	30-75	<20	NP-3
	10-31	Loam, sandy clay loam, fine sandy loam.	CL, ML, CL-ML	A-4, A-6	0	90-100	90-100	80-95	55-75	25-40	6-15
	31-47	Fine sandy loam, sandy loam, gravelly fine sandy loam.	ML, CL, SM, SC	A-4, A-2	0	70-100	70-100	40-85	20-65	<30	NP-10
	47-72	Loamy fine sand	SM	A-2, A-1	0	60-90	55-85	35-65	15-35	---	NP
34----------------- Tippah	0-6	Silt loam	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
	6-26	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	26-72	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	100	99-100	80-100	60-95	50-65	25-40
35----------------- Yorktown	0-7	Silty clay------	MH, CH, OH	A-7	0	100	100	100	95-100	55-75	22-45
	7-44	Clay------------	CH	A-7	0	100	100	100	95-100	60-80	32-50
	44-60	Clay------------	CH	A-7	0	100	100	95-100	90-100	60-80	32-50

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
1---------------- Amy	0-12	0.6-2.0	0.13-0.24	4.5-5.5	Low------------	0.43	5
	12-54	0.06-0.2	0.16-0.24	4.5-5.5	Low------------	0.43	
	54-72	0.6-2.0	0.11-0.15	4.5-5.5	Low------------	0.43	
2---------------- Arkabutla	0-8	0.6-2.0	0.20-0.22	4.5-5.5	Low------------	0.37	5
	8-72	0.6-2.0	0.18-0.21	4.5-5.5	Low------------	0.32	
3---------------- Bude	0-32	0.6-2.0	0.18-0.23	4.5-6.0	Low------------	0.49	3
	32-45	0.06-0.2	0.10-0.12	4.5-6.0	Low------------	0.43	
	45-72	0.06-0.2	0.10-0.12	4.5-6.0	Moderate-------	0.37	
4---------------- Calhoun	0-14	0.2-0.6	0.21-0.23	4.5-6.0	Low------------	0.49	3
	14-50	0.06-0.2	0.20-0.22	4.5-6.0	Moderate-------	0.43	
	50-72	0.2-0.6	0.21-0.23	4.5-7.8	Low------------	0.43	
5, 6------------- Calloway	0-25	0.6-2.0	0.20-0.23	4.5-6.0	Low------------	0.49	3
	25-50	0.06-0.2	0.09-0.12	4.5-6.0	Moderate-------	0.43	
	50-72	0.06-0.2	0.09-0.12	5.1-7.8	Low------------	0.43	
7*--------------- Crevasse	0-4	6.0-20	0.08-0.08	5.6-8.4	Low------------	0.15	5
	4-72	6.0-20	0.02-0.06	5.6-8.4	Low------------	0.15	
8---------------- Crowley	0-25	0.2-0.6	0.20-0.23	4.5-8.4	Low------------	0.43	4
	25-49	<0.06	0.19-0.21	4.5-6.5	High-----------	0.32	
	49-72	0.06-0.2	0.20-0.22	5.6-8.4	Moderate-------	0.32	
9*. Fluvaquents							
10, 11, 12------- Grenada	0-7	0.6-2.0	0.20-0.23	4.5-6.0	Low------------	0.43	3
	7-22	0.6-2.0	0.20-0.23	4.5-6.0	Low------------	0.43	
	22-26	0.6-2.0	0.20-0.23	4.5-6.0	Low------------	0.43	
	26-72	0.06-0.2	0.10-0.12	4.5-6.0	Low------------	0.37	
13, 14*---------- Guyton	0-14	0.6-2.0	0.20-0.23	3.6-6.0	Low------------	0.49	3
	14-77	0.06-0.2	0.15-0.22	3.6-6.0	Low------------	0.37	
	77-80	0.06-2.0	0.15-0.22	3.6-8.4	Low------------	0.37	
15--------------- Hebert	0-8	0.6-2.0	0.21-0.23	5.1-7.3	Low------------	0.37	4
	8-39	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-------	0.32	
	39-72	0.6-2.0	0.18-0.22	5.1-7.8	Low------------	0.37	
16--------------- Henry	0-12	0.6-2.0	0.20-0.23	4.5-6.0	Low------------	0.43	5
	12-24	0.6-2.0	0.20-0.23	4.5-6.0	Low------------	0.43	
	24-47	0.06-0.2	0.14-0.17	4.5-6.0	Low------------	0.43	
	47-72	0.2-0.6	0.20-0.23	5.1-7.8	Low------------	0.43	
17--------------- Lafe	0-8	0.6-2.0	0.13-0.24	5.1-6.5	Low------------	0.49	1
	8-49	<0.06	0.09-0.15	7.4-9.0	Moderate-------	0.49	
	49-72	<0.2	0.02-0.07	7.9-9.0	Moderate-------	0.49	
18--------------- Ouachita	0-20	0.6-2.0	0.15-0.24	4.5-6.0	Low------------	0.37	5
	20-68	0.2-0.6	0.15-0.24	4.5-5.5	Low------------	0.32	
	68-72	0.6-6.0	0.07-0.24	4.5-5.5	Low------------	0.24	
19--------------- Perry	0-6	<0.06	0.17-0.20	4.5-6.0	Very high------	0.24	5
	6-24	<0.06	0.17-0.20	5.1-7.3	Very high------	0.28	
	24-72	<0.06	0.17-0.20	6.1-8.4	Very high------	0.28	
20--------------- Pheba	0-8	0.6-2.0	0.16-0.22	4.5-5.5	Low------------	0.49	3
	8-28	0.6-2.0	0.16-0.22	4.5-5.5	Low------------	0.49	
	28-72	0.2-0.6	0.05-0.10	4.5-5.5	Low------------	0.43	

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
21----------------- Pikeville	0-15	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.24	4
	15-28	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.37	
	28-48	2.0-6.0	0.05-0.10	4.5-5.5	Low------------	0.10	
	48-80	2.0-6.0	0.04-0.08	4.5-5.5	Low------------	0.10	
22----------------- Portland	0-6	0.2-2.0	0.16-0.24	4.5-5.5	Low------------	0.43	5
	6-18	<0.06	0.12-0.18	4.5-5.5	High-----------	0.32	
	18-45	<0.06	0.12-0.18	6.1-8.4	High-----------	0.32	
	45-72	<0.06	0.12-0.22	6.1-8.4	High-----------	0.32	
23----------------- Portland	0-3	<0.06	0.12-0.18	4.5-5.5	High-----------	0.32	5
	3-18	<0.06	0.12-0.18	4.5-5.5	High-----------	0.32	
	18-45	<0.06	0.12-0.18	6.1-8.4	High-----------	0.32	
	45-72	<0.06	0.12-0.22	6.1-8.4	High-----------	0.32	
24----------------- Providence	0-10	0.6-2.0	0.20-0.22	4.5-6.0	Low------------	0.43	3
	10-30	0.6-2.0	0.20-0.22	4.5-6.0	Low------------	0.43	
	30-40	0.2-0.6	0.08-0.10	4.5-6.0	Moderate-------	0.32	
	40-72	0.2-0.6	0.08-0.10	4.5-6.0	Low------------	0.32	
25, 26------------ Rilla	0-6	0.6-2.0	0.21-0.23	4.5-7.3	Low------------	0.37	5
	6-41	0.6-2.0	0.20-0.22	3.6-5.5	Moderate-------	0.32	
	41-72	0.6-2.0	0.18-0.22	4.5-8.4	Low------------	0.32	
27, 28------------ Ruston	0-9	0.6-2.0	0.09-0.16	4.5-6.5	Low------------	0.32	5
	9-46	0.6-2.0	0.12-0.17	4.5-6.0	Low------------	0.28	
	46-55	0.6-2.0	0.12-0.15	4.5-6.0	Low------------	0.32	
	55-80	0.6-2.0	0.12-0.17	4.5-6.0	Low------------	0.28	
29----------------- Sacul	0-7	0.6-2.0	0.10-0.20	4.5-5.5	Low------------	0.32	3
	7-36	0.06-0.2	0.12-0.18	4.5-5.5	High-----------	0.32	
	36-72	0.2-0.6	0.16-0.24	4.5-5.5	Moderate-------	0.37	
30, 31------------ Savannah	0-9	0.6-2.0	0.10-0.15	4.0-5.5	Low------------	0.24	3
	9-24	0.6-2.0	0.13-0.20	4.0-5.5	Low------------	0.28	
	24-59	0.2-0.6	0.05-0.10	4.0-5.5	Low------------	0.24	
	59-72	0.6-2.0	0.10-0.15	4.0-5.5	Low------------	0.24	
32----------------- Smithdale	0-13	2.0-6.0	0.14-0.16	4.5-5.5	Low------------	0.28	5
	13-32	0.6-2.0	0.15-0.17	4.5-5.5	Low------------	0.24	
	32-80	2.0-6.0	0.14-0.16	4.5-5.5	Low------------	0.28	
33----------------- Spadra Variant	0-10	0.6-2.0	0.11-0.24	4.5-5.5	Low------------	0.37	5
	10-31	0.6-2.0	0.12-0.20	4.5-5.5	Low------------	0.37	
	31-47	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.24	
	47-72	2.0-6.0	0.06-0.10	4.5-5.5	Low------------	0.20	
34----------------- Tippah	0-6	0.6-2.0	0.20-0.22	4.5-6.0	Low------------	0.43	4
	6-26	0.06-0.2	0.19-0.21	4.5-6.0	Moderate-------	0.43	
	26-72	0.06-0.2	0.16-0.18	4.5-6.0	High-----------	0.24	
35----------------- Yorktown	0-7	<0.06	0.12-0.18	5.6-7.3	High-----------	0.32	5
	7-44	<0.06	0.12-0.18	5.6-7.3	Very high------	0.32	
	44-60	<0.06	0.12-0.18	7.4-8.4	Very high------	0.32	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
1----------------- Amy	D	None--------	---	---	0-1.0	Perched	Dec-Apr	>60	---	High-----	Moderate.
2----------------- Arkabutla	C	Frequent----	Brief to very long.	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	>60	---	High-----	High.
3----------------- Bude	C	None--------	---	---	0.5-1.5	Perched	Jan-Apr	>60	---	High-----	High.
4----------------- Calhoun	D	None--------	---	---	0-2.0	Perched	Dec-Apr	>60	---	High-----	Moderate.
5, 6-------------- Calloway	C	None--------	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	High-----	Moderate.
7*---------------- Crevasse	A	Frequent----	Brief to very long.	Dec-Jun	3.5-6.0	Apparent	Nov-Mar	>60	---	Low------	Moderate.
8----------------- Crowley	D	None--------	---	---	0.5-1.5	Perched	Dec-Apr	>60	---	High-----	Moderate.
9*. Fluvaquents											
10, 11, 12-------- Grenada	C	None--------	---	---	2.0-2.5	Perched	Jan-Mar	>60	---	Moderate	Moderate.
13---------------- Guyton	D	None--------	---	---	0-1.5	Apparent	Dec-May	>60	---	High-----	Moderate.
14---------------- Guyton	D	Frequent----	Very brief to long.	Jan-Jun	0-1.5	Apparent	Dec-May	>60	---	High-----	Moderate.
15---------------- Hebert	C	None--------	---	---	1.5-3.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.
16---------------- Henry	D	None--------	---	---	1.0-1.5	Perched	Dec-Apr	>60	---	High-----	Moderate.
17---------------- Lafe	D	None--------	---	---	0-1.0	Perched	Dec-Apr	>60	---	High-----	Moderate.
18---------------- Ouachita	C	Frequent----	Long to very long.	Dec-May	>6.0	---	---	>60	---	Moderate	Moderate.
19---------------- Perry	D	None--------	---	---	0-2.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.
20---------------- Pheba	C	None--------	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	High-----	High.
21---------------- Pikeville	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
22, 23------------ Portland	D	None--------	---	---	0-1.0	Perched	Dec-May	>60	---	High-----	Moderate.
24---------------- Providence	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	Moderate	Moderate.
25, 26------------ Rilla	B	None--------	---	---	4.0-6.0	Apparent	Dec-Apr	>60	---	Moderate	High.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
27, 28----------- Ruston	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
29--------------- Sacul	C	None--------	---	---	>6.0	---	---	>60	---	High-----	Moderate.
30, 31----------- Savannah	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	Moderate	High.
32--------------- Smithdale	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
33--------------- Spadra Variant	B	Occasional	Brief-----	Dec-Jun	>6.0	---	---	>60	---	Low------	High.
34--------------- Tippah	C	None--------	---	---	2.5	Perched	Dec-Apr	>60	---	High-----	High.
35--------------- Yorktown	D	Common------	Very long	Oct-Aug	+5-0.5	Apparent	Oct-Aug	>60	---	High-----	Moderate.

*See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse through medium (2.0-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.10-0.05 mm)	Total (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)
	In		Percent less than 2.0 mm					
Guyton silt loam:								
S-76-Ark-003-1-1	0-4	A1	1	1	1	3	81	16
S-76-Ark-003-1-2	4-14	A2g	2	5	5	12	74	14
S-76-Ark-003-1-3	14-22	Bg&Ag	1	2	2	5	61	34
S-76-Ark-003-1-4	22-34	B21tg	2	3	3	8	62	30
S-76-Ark-003-1-5	34-43	B22tg	1	3	3	7	55	38
S-76-Ark-003-1-6	43-54	B23tg	1	3	3	7	48	45
S-76-Ark-003-1-7	54-66	B24tg	1	6	4	11	41	48
S-76-Ark-003-1-8	66-77	B25tg	4	15	11	30	35	35
S-76-Ark-003-1-9	77-80	B3g	2	13	19	34	40	26
Portland silty clay:								
S-60-Ark-2-1-1	0-3	Ap1	3	1	1	5	46	49
S-60-Ark-2-1-2	3-8	Ap2	1	0	0	1	21	78
S-60-Ark-2-1-3	8-18	C1	0	1	0	1	20	79
S-60-Ark-2-1-4	18-30	C2	0	0	1	1	30	69
S-60-Ark-2-1-5	30-45	C3	1	0	0	1	36	63
S-60-Ark-2-1-6	45-65	C4*	1	0	0	1	42	57
S-60-Ark-2-1-7	45-65	C4**	1	0	0	1	80	19

* Silty clay layers.
** Silt loam layers.

TABLE 19. CHEMICAL ANALYSES OF SELECTED SOILS

[Absence of an entry indicates analyses were not made]

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Extractable acidity	Base saturation	Reaction (1:1 soil: water)	Organic carbon
	In		Meq/100 g					Pct	pH	Pct
Guyton silt loam:										
S-76-Ark-003-1-1	0-4	A1	5.9	0.9	0.1	0.2	15.9	31	4.5	3.71
S-76-Ark-003-1-2	4-14	A2g	0.5	0.2	0.1	0.0	10.4	7	4.2	0.49
S-76-Ark-003-1-3	14-22	Bg&Ag	0.8	0.7	1.2	0.1	20.0	12	4.1	0.36
S-76-Ark-003-1-4	22-34	B21tg	1.8	1.3	2.1	0.2	18.4	23	3.9	0.28
S-76-Ark-003-1-5	34-43	B22tg	3.8	2.5	4.8	0.2	17.1	40	4.0	0.25
S-76-Ark-003-1-6	43-54	B23tg	4.8	3.3	6.1	0.2	18.6	44	4.2	0.29
S-76-Ark-003-1-7	54-66	B24tg	6.4	4.1	7.4	0.3	18.7	49	4.0	0.21
S-76-Ark-003-1-8	66-77	B25tg	5.1	3.4	6.2	0.3	12.8	54	4.0	0.20
S-76-Ark-003-1-9	77-80	B3g	3.9	2.7	5.2	0.2	8.7	58	4.1	0.05
Portland silty clay:										
S-60-Ark-2-1-1	0-3	Ap1	13.8	9.1	0.1	1.1	13.6	64	5.4	1.93
S-60-Ark-2-1-2	3-8	Ap2	17.3	15.7	0.5	1.2	21.0	62	4.3	0.54
S-60-Ark-2-1-3	8-18	C1	20.6	18.6	1.0	1.1	13.9	75	4.6	0.42
S-60-Ark-2-1-4	18-30	C2	22.8	17.8	1.3	1.0	8.0	84	5.7	0.67
S-60-Ark-2-1-5	30-45	C3	--	17.9	1.7	1.1	<0.1	--	7.6	0.34
S-60-Ark-2-1-6	45-65	C4*	--	14.4	2.2	1.1	<0.1	--	7.8	0.24
S-60-Ark-2-1-7	45-65	C4**	--	5.7	1.1	0.4	0.8	--	8.1	0.16

* Silty clay layers.
** Silt loam layers.

TABLE 20.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Amy	Fine-silty, siliceous, thermic Typic Ochraquults
Arkabutla	Fine-silty, mixed, acid, thermic Aeric Fluvaquents
Bude	Fine-silty, mixed, thermic Glossaquic Fragiudalfs
Calhoun	Fine-silty, mixed, thermic Typic Glossaqualfs
Calloway	Fine-silty, mixed, thermic Glossaquic Fragiudalfs
Crevasse	Mixed, thermic Typic Udipsamments
Crowley	Fine, montmorillonitic, thermic Typic Albaqualfs
Fluvaquents	Flavaquents
Grenada	Fine-silty, mixed, thermic Glossic Fragiudalfs
Guyton	Fine-silty, siliceous, thermic Typic Glossaqualfs
Hebert	Fine-silty, mixed, thermic Aeric Ochraqualfs
Henry	Coarse-silty, mixed, thermic Typic Fragiaqualfs
Lafe	Fine-silty, mixed, thermic Glossic Natrudalfs
Ouachita	Fine-silty, siliceous, thermic Fluventic Dystrochrepts
Perry	Very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Pheba	Coarse-silty, siliceous, thermic Glossaquic Fragiudults
Pikeville	Fine-loamy, siliceous, thermic Typic Paleudults
Portland	Very-fine, mixed, nonacid, thermic Vertic Haplaquepts
Providence	Fine-silty, mixed, thermic Typic Fragiudalfs
Rilla	Fine-silty, mixed, thermic Typic Hapludalfs
Ruston	Fine-loamy, siliceous, thermic Typic Paleudults
Sacul	Clayey, mixed, thermic Aquic Hapludults
Savannah	Fine-loamy, siliceous, thermic Typic Fragiudults
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults
Spadra Variant	Fine-loamy, siliceous, thermic Typic Hapludults
Tippah	Fine-silty, mixed, thermic Aquic Paleudalfs
Yorktown	Very-fine, montmorillonitic, nonacid, thermic Typic Fluvaquents

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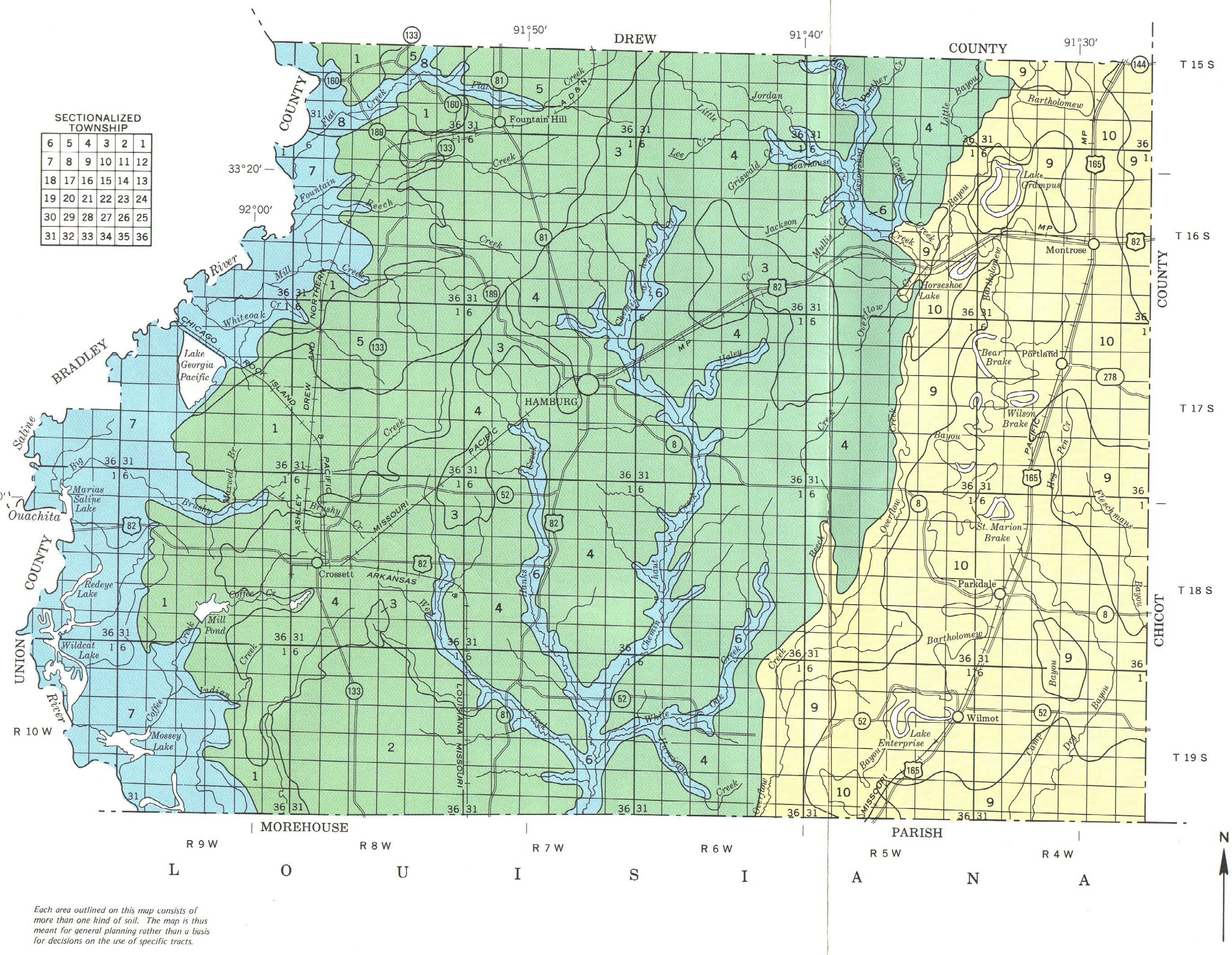


Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

LEGEND*

AREAS DOMINATED BY LEVEL TO MODERATELY SLOPING SOILS ON UPLANDS

1	Amy-Pheba: Poorly drained and somewhat poorly drained, level and nearly level, loamy soils; on uplands
2	Bude-Providence: Somewhat poorly drained and moderately well drained, level and nearly level, loamy soils; on uplands
3	Calhoun: Poorly drained, level, loamy soils; on uplands
4	Calloway-Grenada-Henry: Moderately well drained to poorly drained, level to moderately sloping, loamy soils; on uplands
5	Savannah-Tippah: Moderately well drained, nearly level to gently sloping, loamy soils; on uplands

AREAS DOMINATED BY LEVEL SOILS ON BOTTOM LANDS SUBJECT TO FREQUENT FLOODING

6	Arkabutla: Somewhat poorly drained, level, loamy soils; on bottom lands
7	Guyton: Poorly drained, level, loamy soils; on bottom lands and stream terraces
8	Guyton-Ouachita: Poorly drained and well drained, level, loamy soils; on bottom lands and stream terraces

AREAS DOMINATED BY LEVEL AND NEARLY LEVEL SOILS ON BOTTOM LANDS

9	Perry-Portland: Poorly drained and somewhat poorly drained, level, clayey and loamy soils; on bottom lands
10	Rilla-Hebert: Well drained and somewhat poorly drained, level to undulating, loamy soils; on bottom lands

*The texture noted in the descriptive headings applies to the surface layer of the major soils.

Compiled 1978

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
FOREST SERVICE
ARKANSAS AGRICULTURAL EXPERIMENT STATION

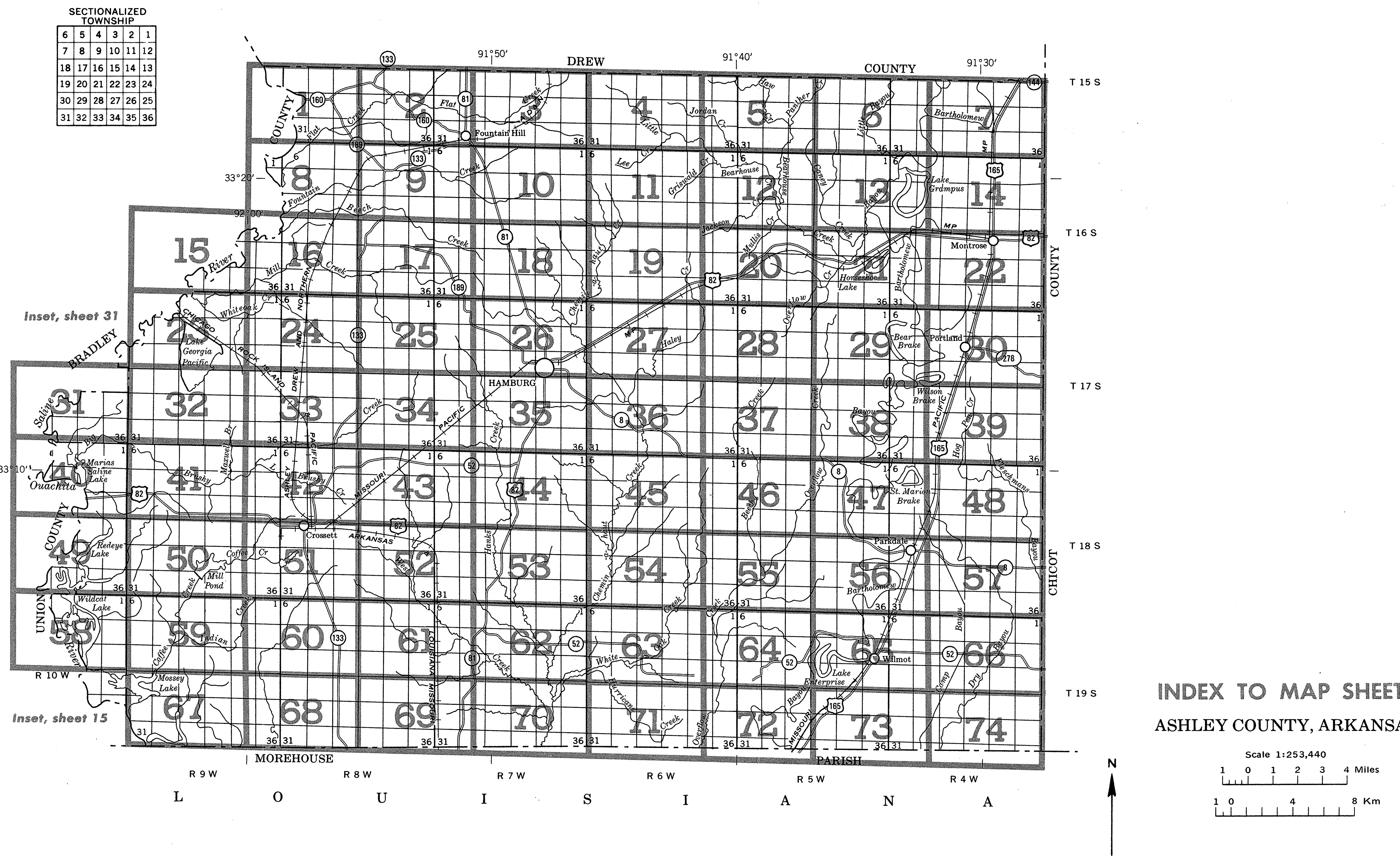
GENERAL SOIL MAP

ASHLEY COUNTY, ARKANSAS

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km



INDEX TO MAP SHEETS

ASHLEY COUNTY, ARKANSAS

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool (Davis Airstrip; FLOOD POOL LINE)

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate (79)
- Federal (410)
- State (52)
- County, farm or ranch (378)

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small (water; w)

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) (Indian Mound)
- Located object (label) (Tower)
- Tank (label) (GAS)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) (CANAL)
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial (water; w)
- Intermittent (int; i)

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS (CeA; FoB2)

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

SOIL LEGEND

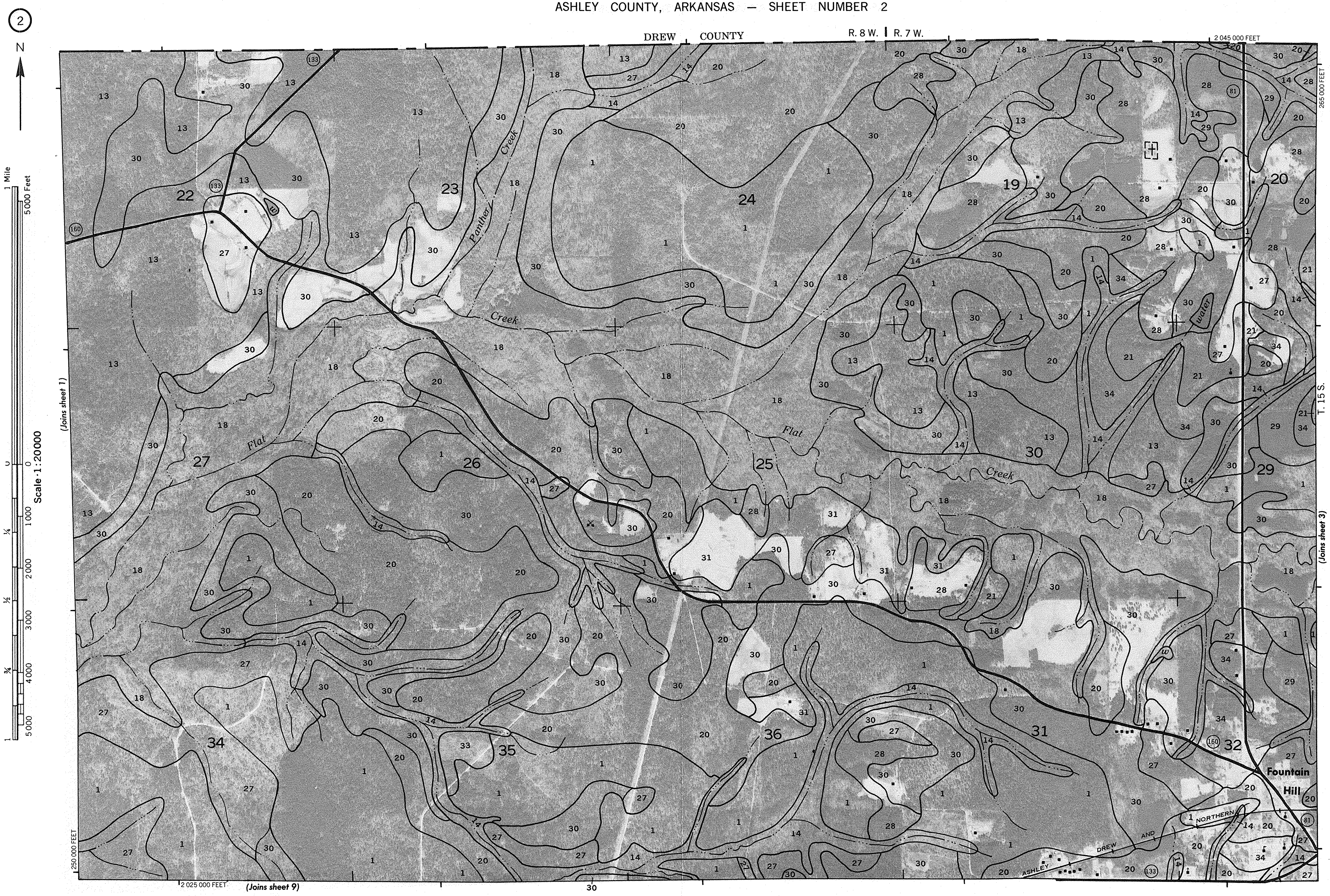
The legend is numeric. Soil names followed by the superscript 1/ are broadly defined units. The composition of these units is more variable than that of other units in the survey area, but have been controlled well enough to be interpreted for the expected use of the soils. Soils without a slope designation in the name are those that occur only on nearly level landscapes.

SYMBOL	NAME
1	Amy silt loam, 0 to 1 percent slopes
2	Arkabutla silt loam, frequently flooded
3	Bude silt loam, 0 to 2 percent slopes
4	Calhoun silt loam, 0 to 1 percent slopes
5	Calloway silt loam, 0 to 1 percent slopes
6	Calloway silt loam, 1 to 3 percent slopes
7	Crevasse soils, frequently flooded 1/
8	Crowley silt loam, 0 to 1 percent slopes
9	Fluvaquents, frequently flooded
10	Grenada silt loam, 1 to 3 percent slopes
11	Grenada silt loam, 3 to 8 percent slopes
12	Grenada silt loam, 8 to 12 percent slopes
13	Guyton silt loam, 0 to 1 percent slopes
14	Guyton soils, frequently flooded 1/
15	Hebert silt loam, 0 to 1 percent slopes
16	Henry silt loam, 0 to 1 percent slopes
17	Lafe silt loam, 0 to 1 percent slopes
18	Ouachita silt loam, frequently flooded
19	Perry clay, 0 to 1 percent slopes
20	Pheba silt loam, 0 to 2 percent slopes
21	Pikeville fine sandy loam, 3 to 8 percent slopes
22	Portland silt loam, 0 to 1 percent slopes
23	Portland silty clay, 0 to 1 percent slopes
24	Providence silt loam, 1 to 3 percent slopes
25	Rilla silt loam, 0 to 1 percent slopes
26	Rilla silt loam, undulating
27	Ruston fine sandy loam, 1 to 3 percent slopes
28	Ruston fine sandy loam, 3 to 8 percent slopes
29	Sacul fine sandy loam, 1 to 3 percent slopes
30	Savannah fine sandy loam, 1 to 3 percent slopes
31	Savannah fine sandy loam, 3 to 8 percent slopes
32	Smithdale fine sandy loam, 8 to 12 percent slopes
33	Spadra Variant fine sandy loam, occasionally flooded
34	Tippah silt loam, 1 to 3 percent slopes
35	Yorktown silty clay

ASHLEY COUNTY, ARKANSAS NO. 1

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

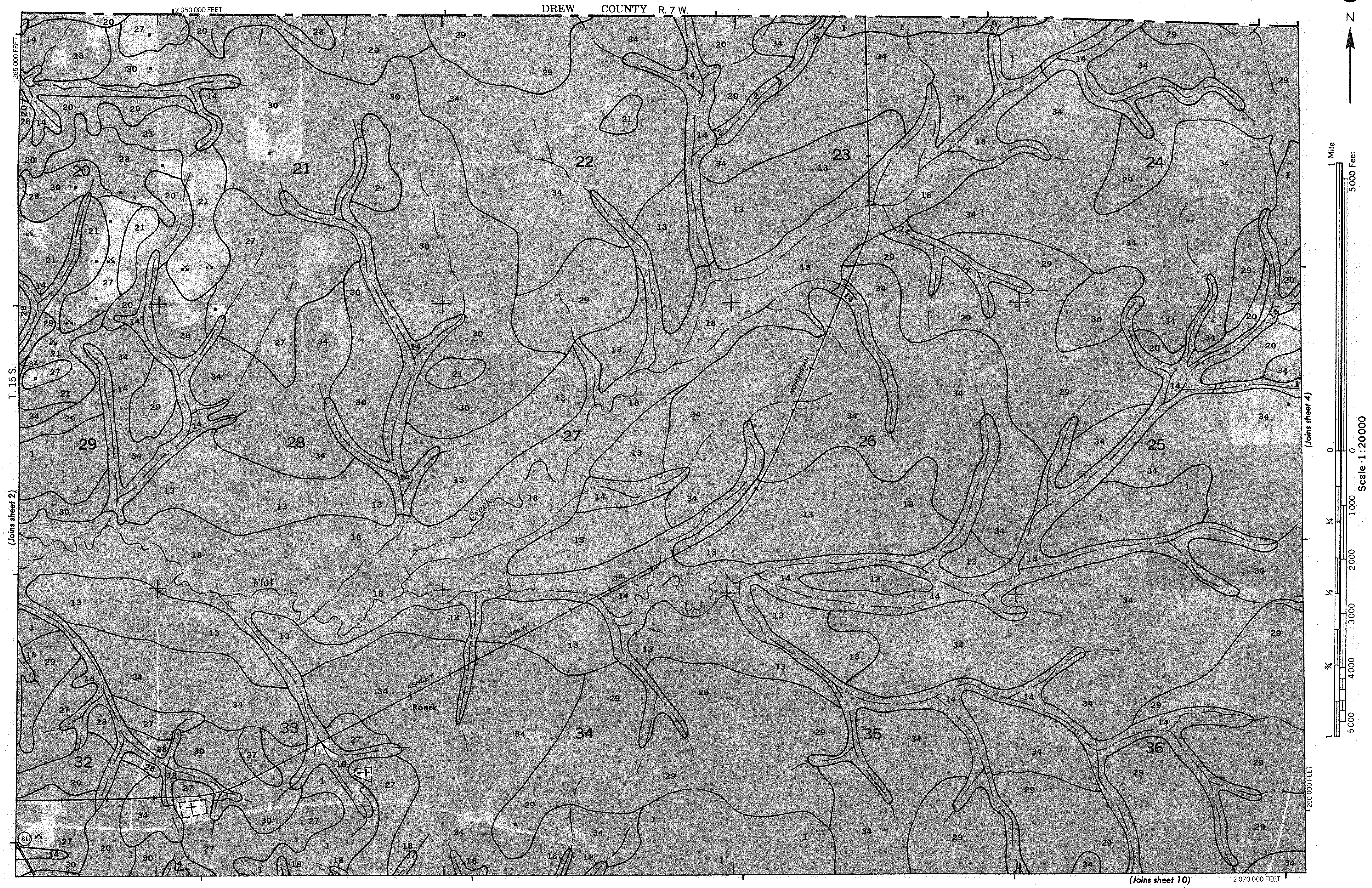
ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 2



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 2

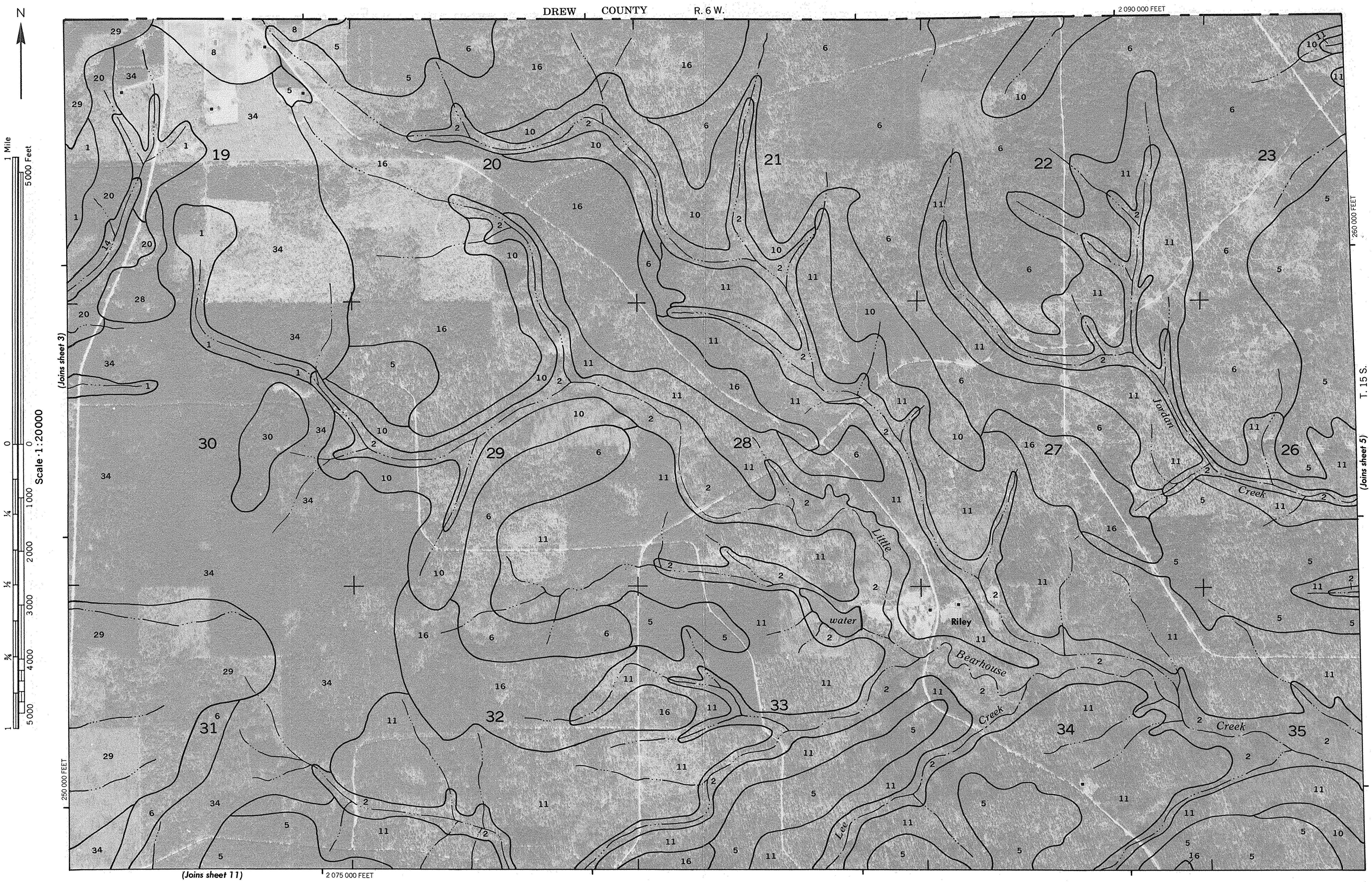
3



ASHLEY COUNTY, ARKANSAS NO. 3

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 4



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

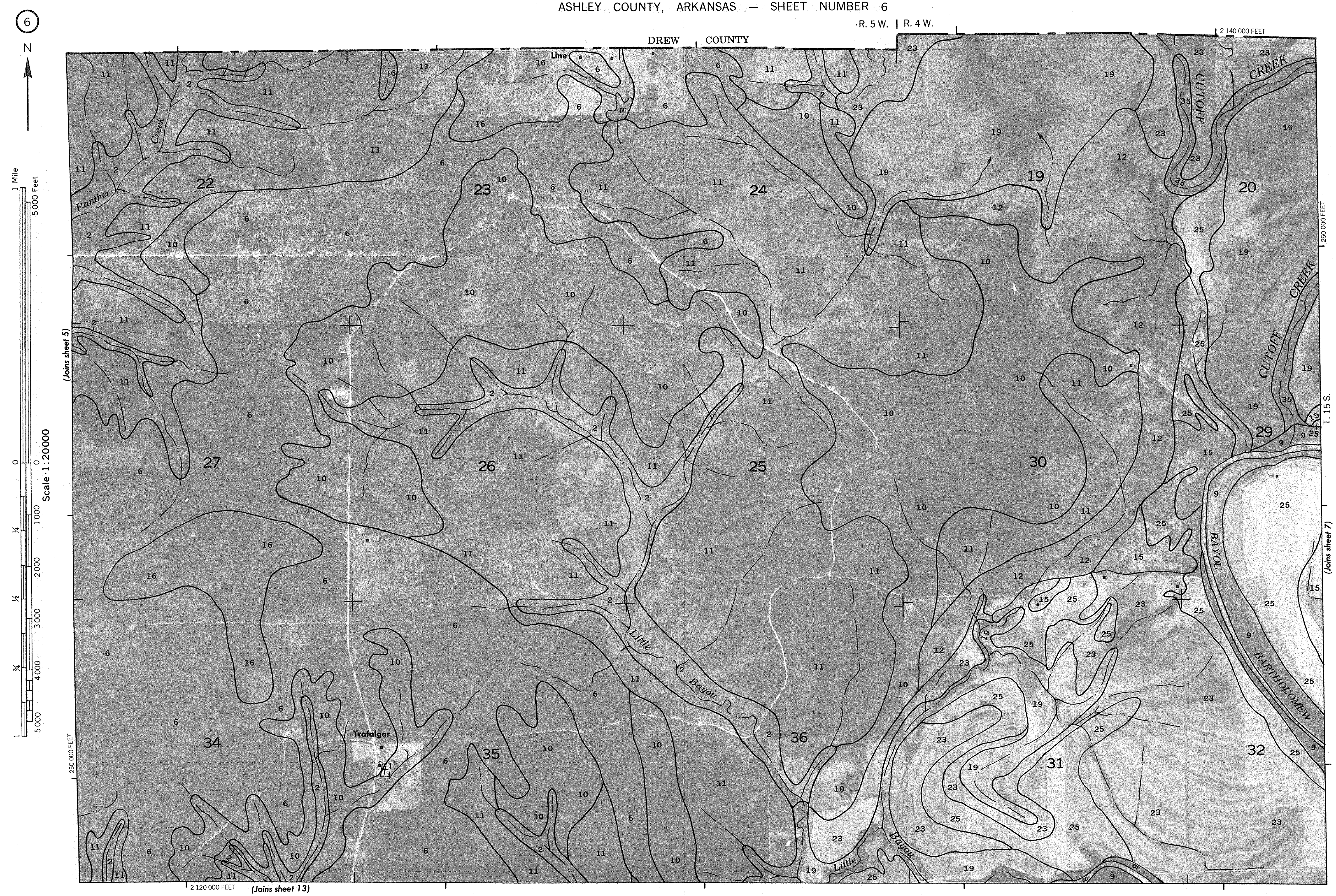
ASHLEY COUNTY, ARKANSAS NO. 4

5

ASHLEY COUNTY, ARKANSAS NO. 5

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 6



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

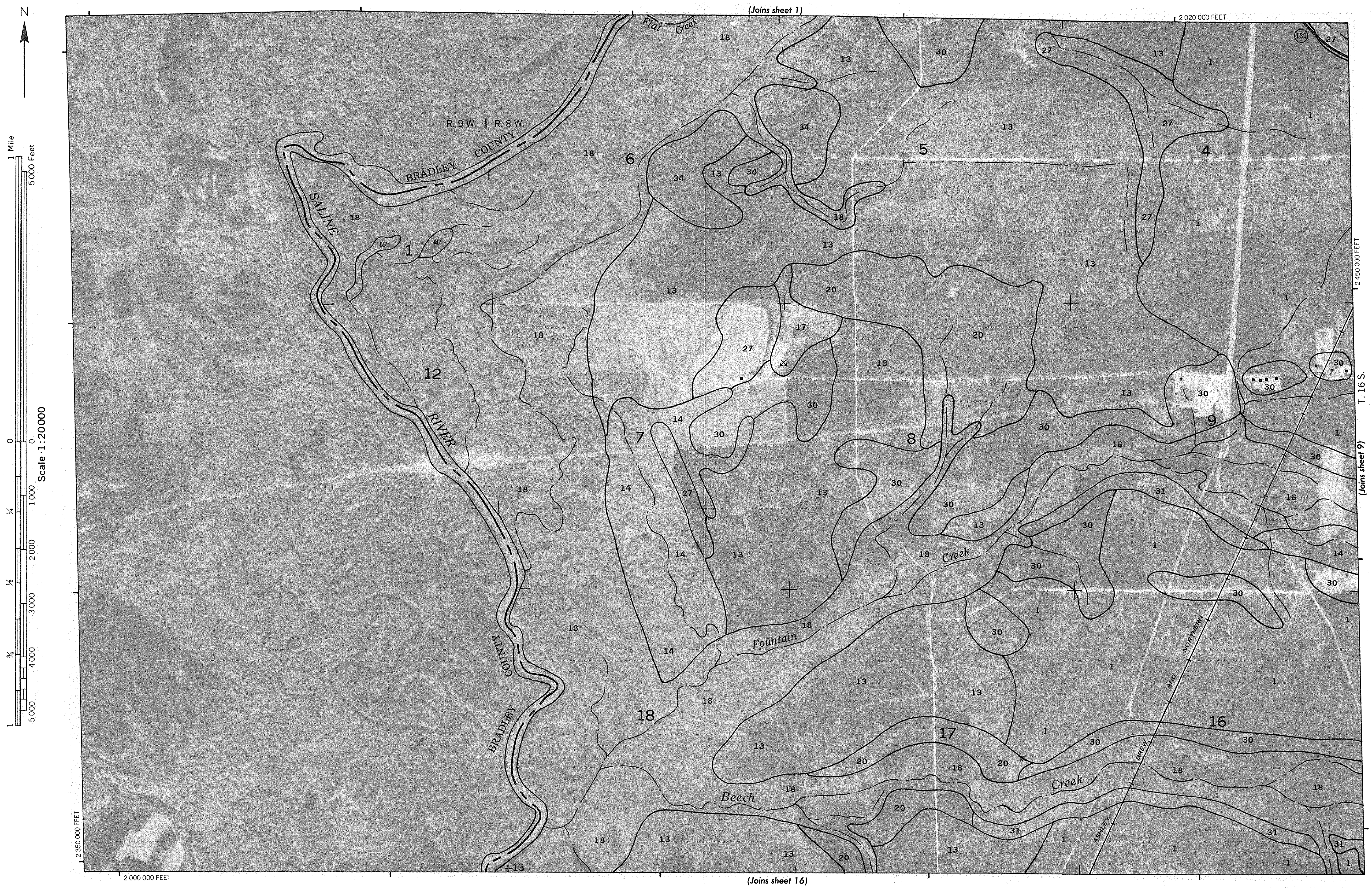
ASHLEY COUNTY, ARKANSAS NO. 6

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 7

ASHLEY COUNTY, ARKANSAS NO. 7

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

8



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

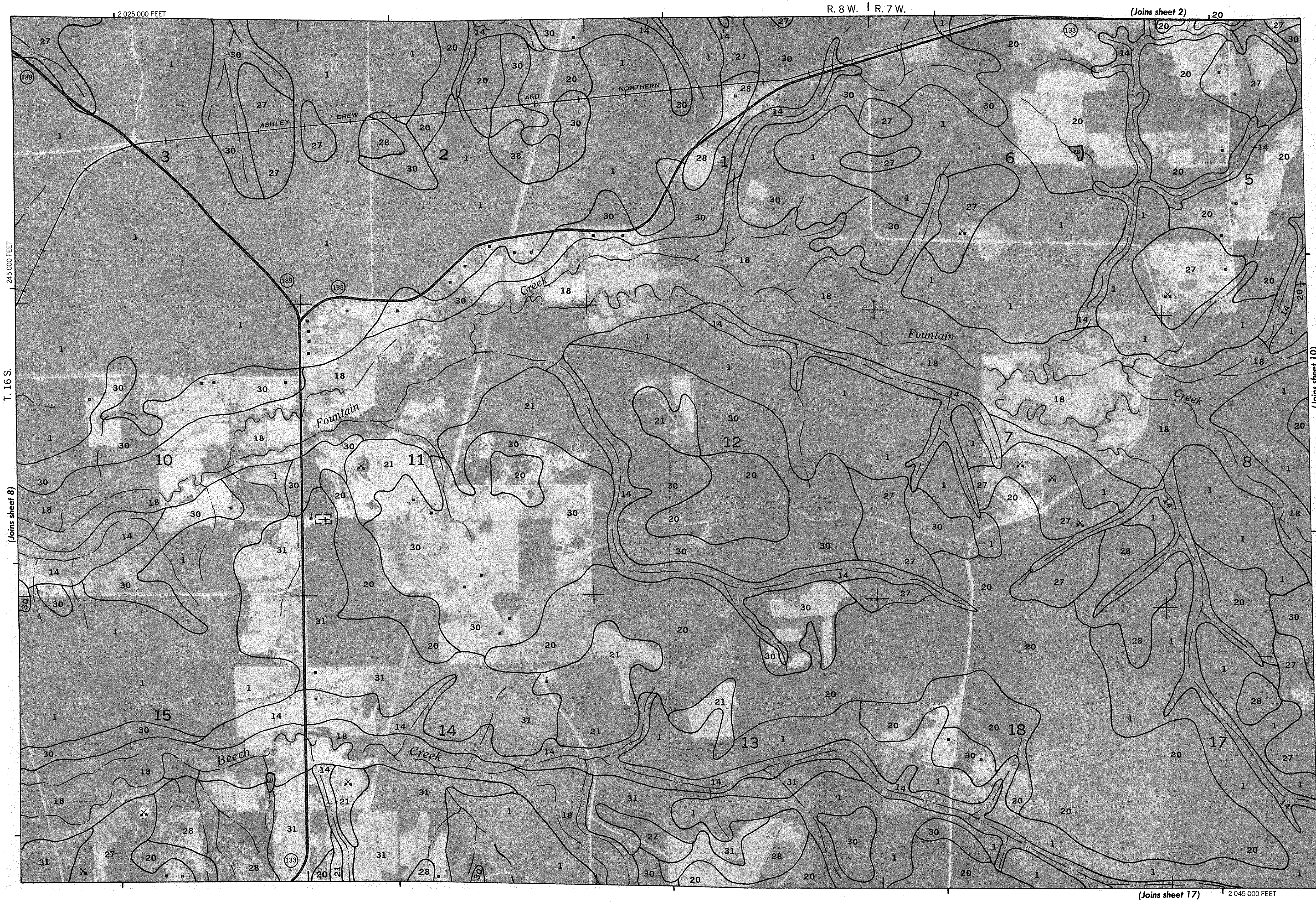
ASHLEY COUNTY, ARKANSAS NO. 8

9

N

ASHLEY COUNTY, ARKANSAS NO. 9

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



1 Mile

5000 Feet

Scale 1:20000

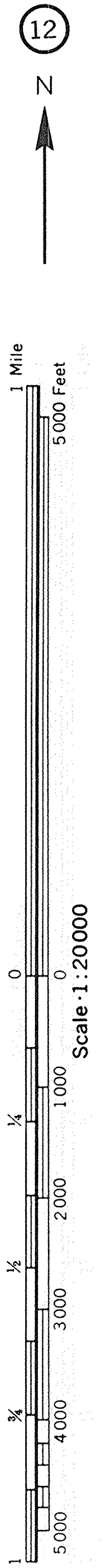
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

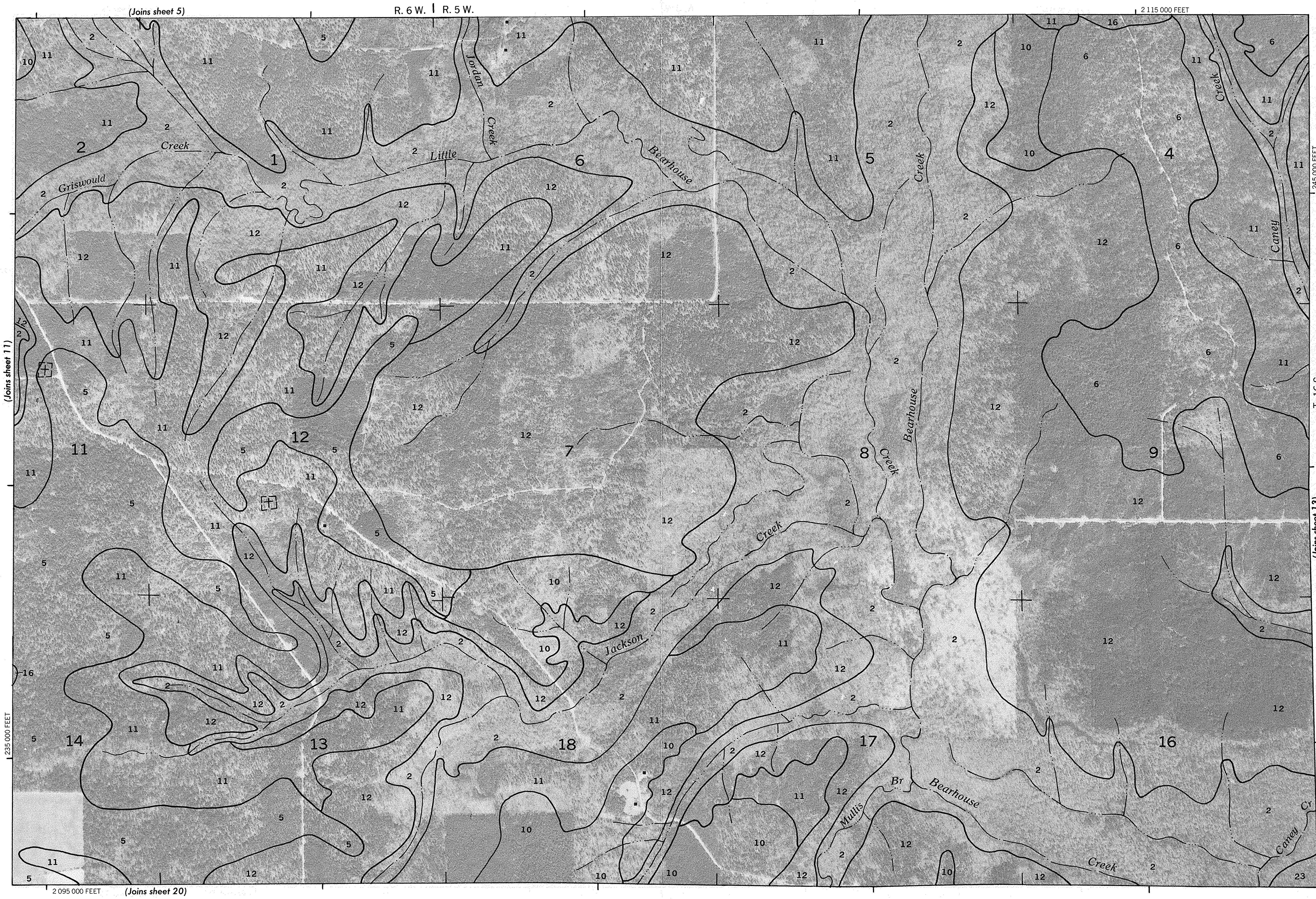
ASHLEY COUNTY, ARKANSAS NO. 10

11

ASHLEY COUNTY, ARKANSAS NO. 11

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.





This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

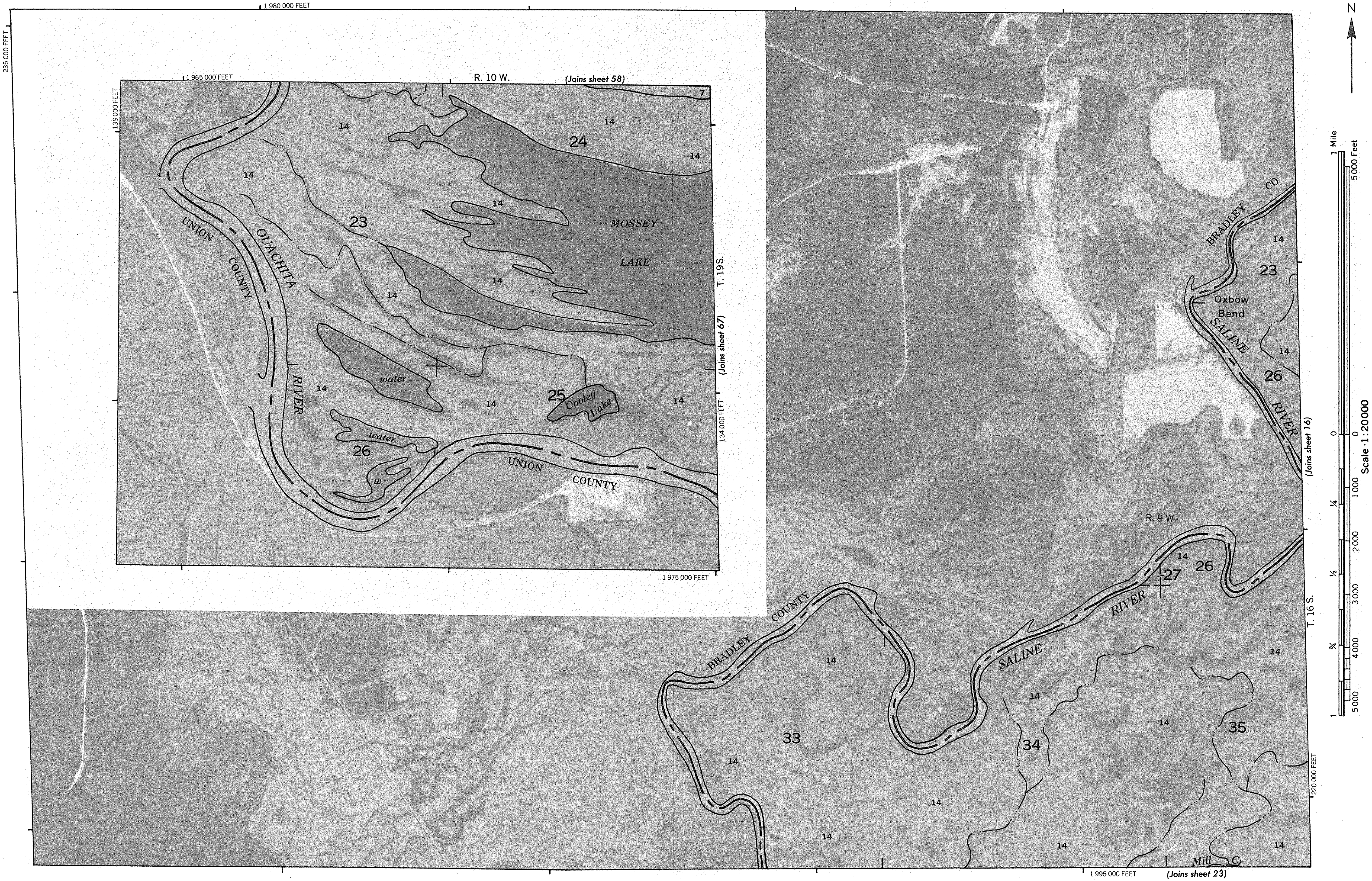
ASHLEY COUNTY, ARKANSAS NO. 12

ASHLEY COUNTY, ARKANSAS NO. 13

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 14

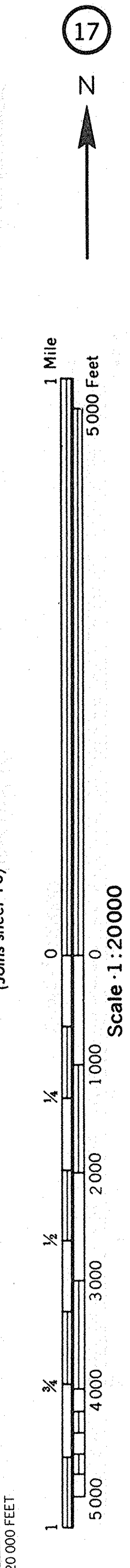


ASHLEY COUNTY, ARKANSAS NO. 15

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

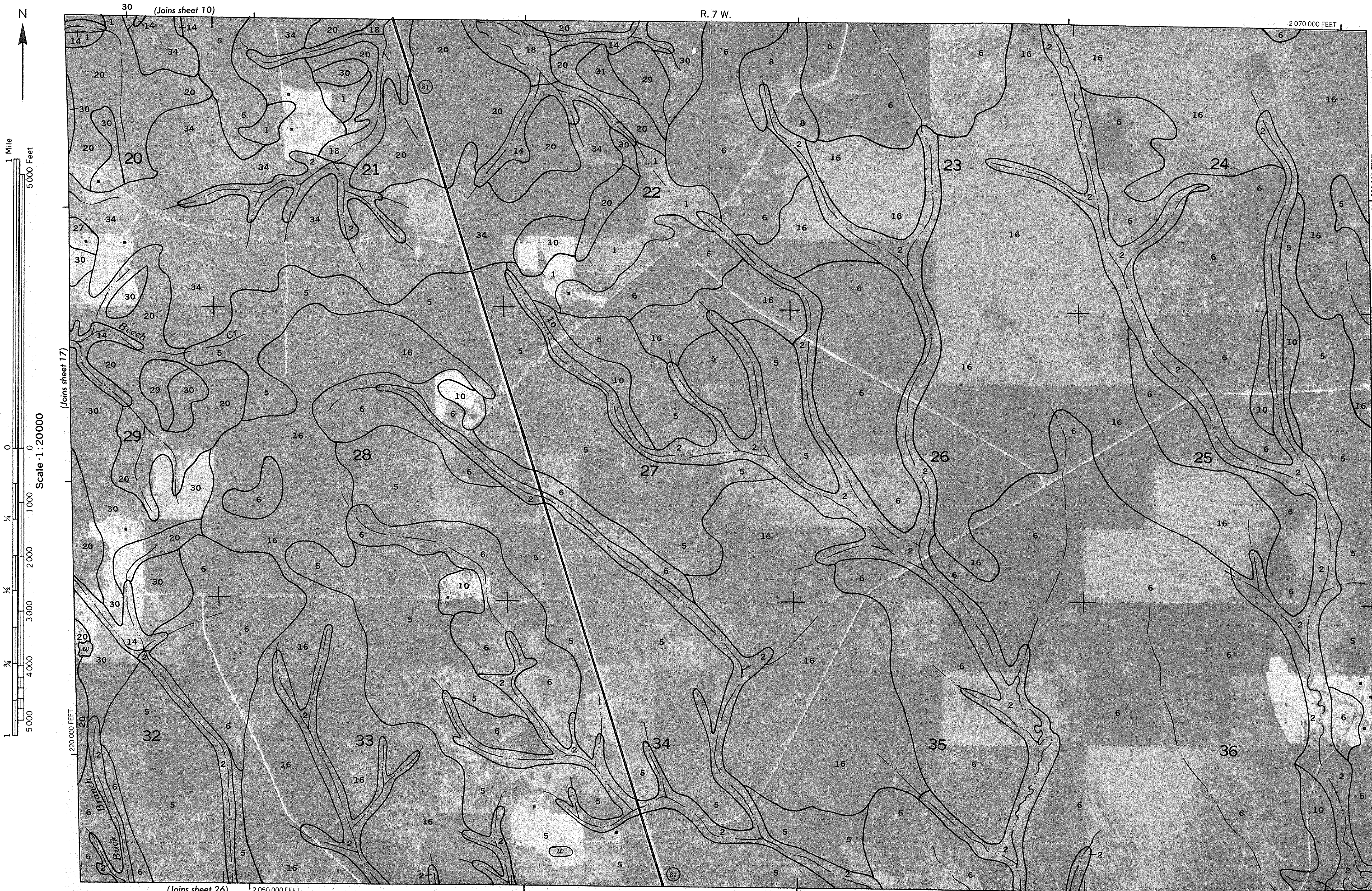
ASHLEY COUNTY, ARKANSAS NO. 16



ASHLEY COUNTY, ARKANSAS NO. 17

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 18



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

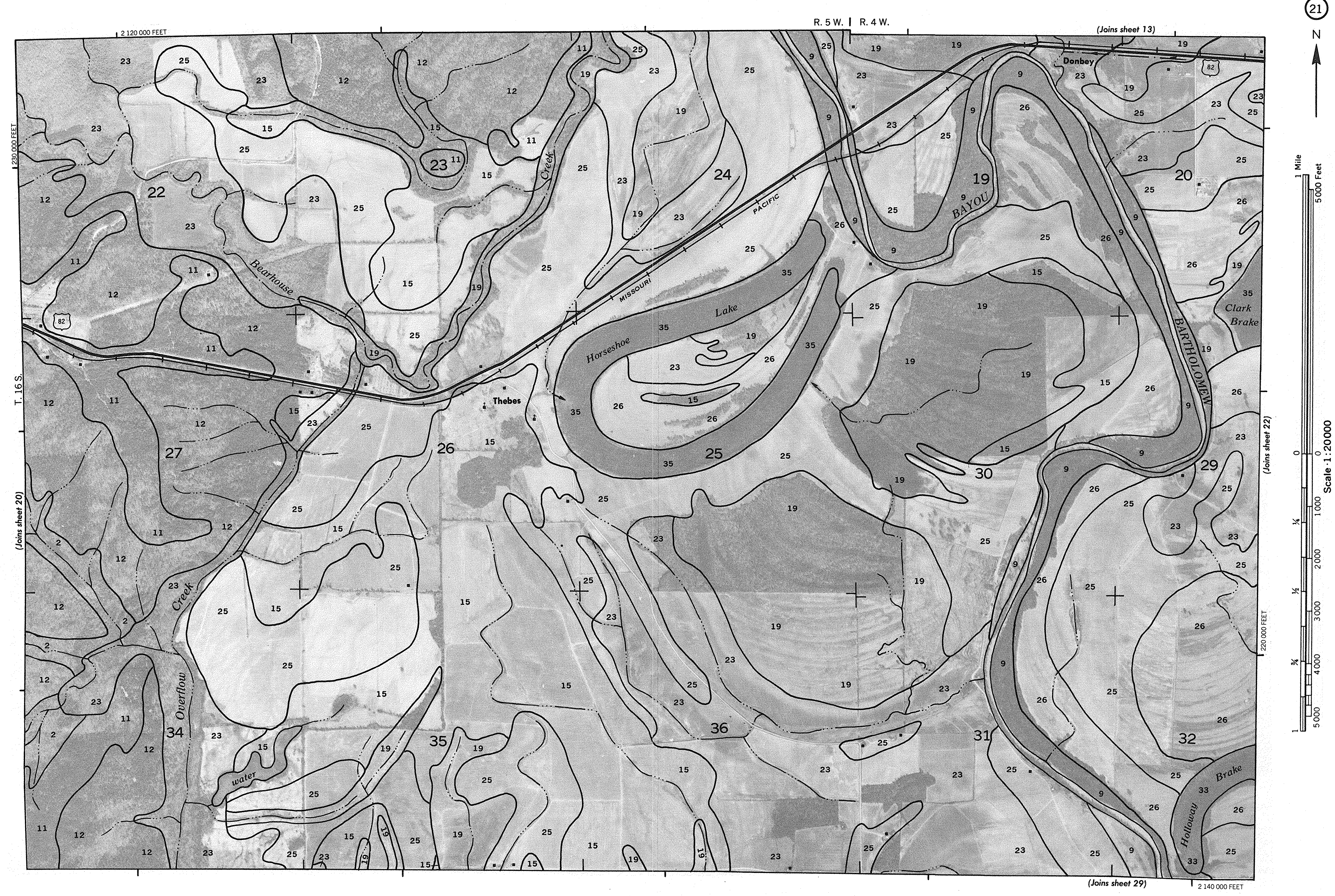
ASHLEY COUNTY, ARKANSAS NO. 18

ASHLEY COUNTY, ARKANSAS NO. 19

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

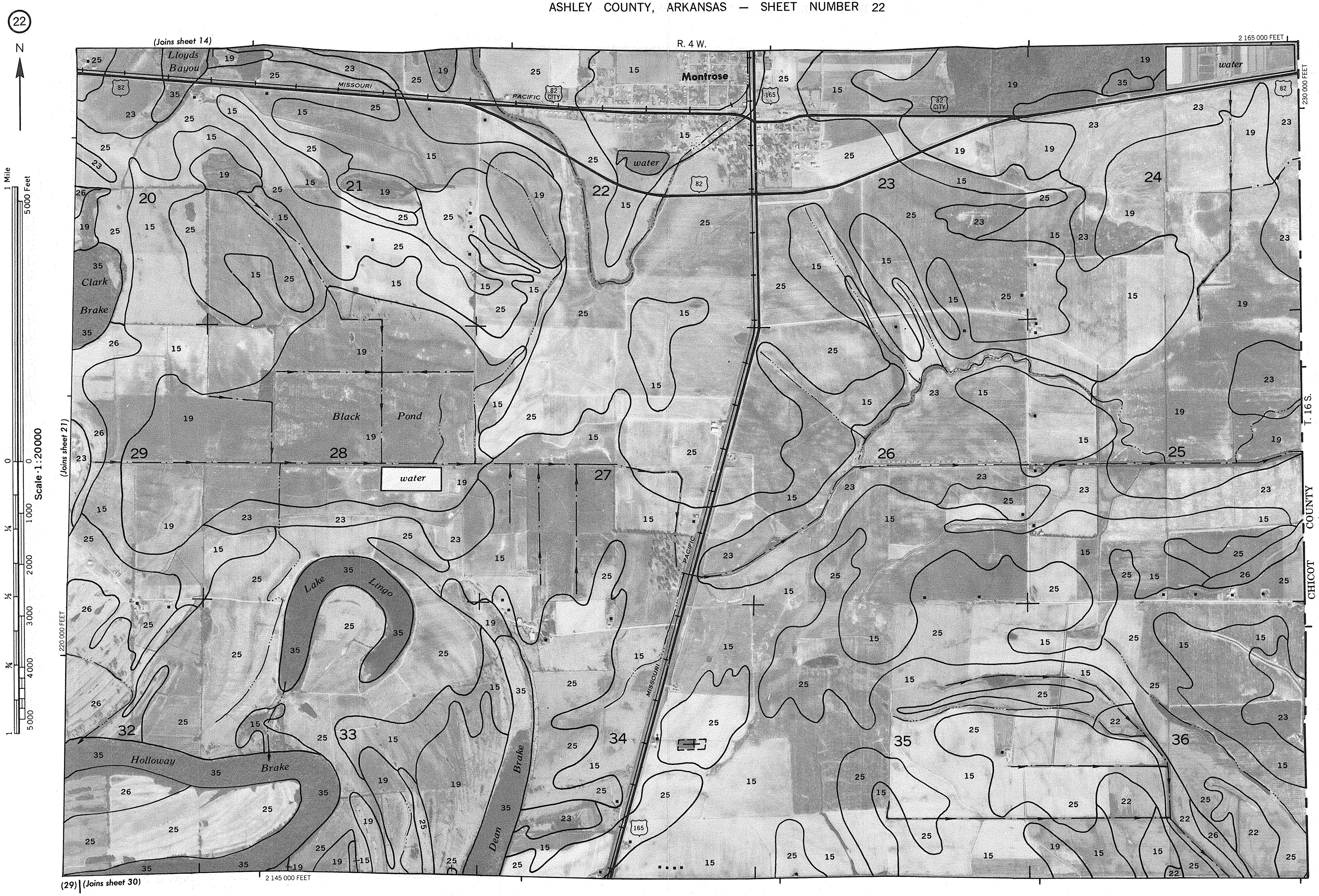
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 20



ASHLEY COUNTY, ARKANSAS NO. 21

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



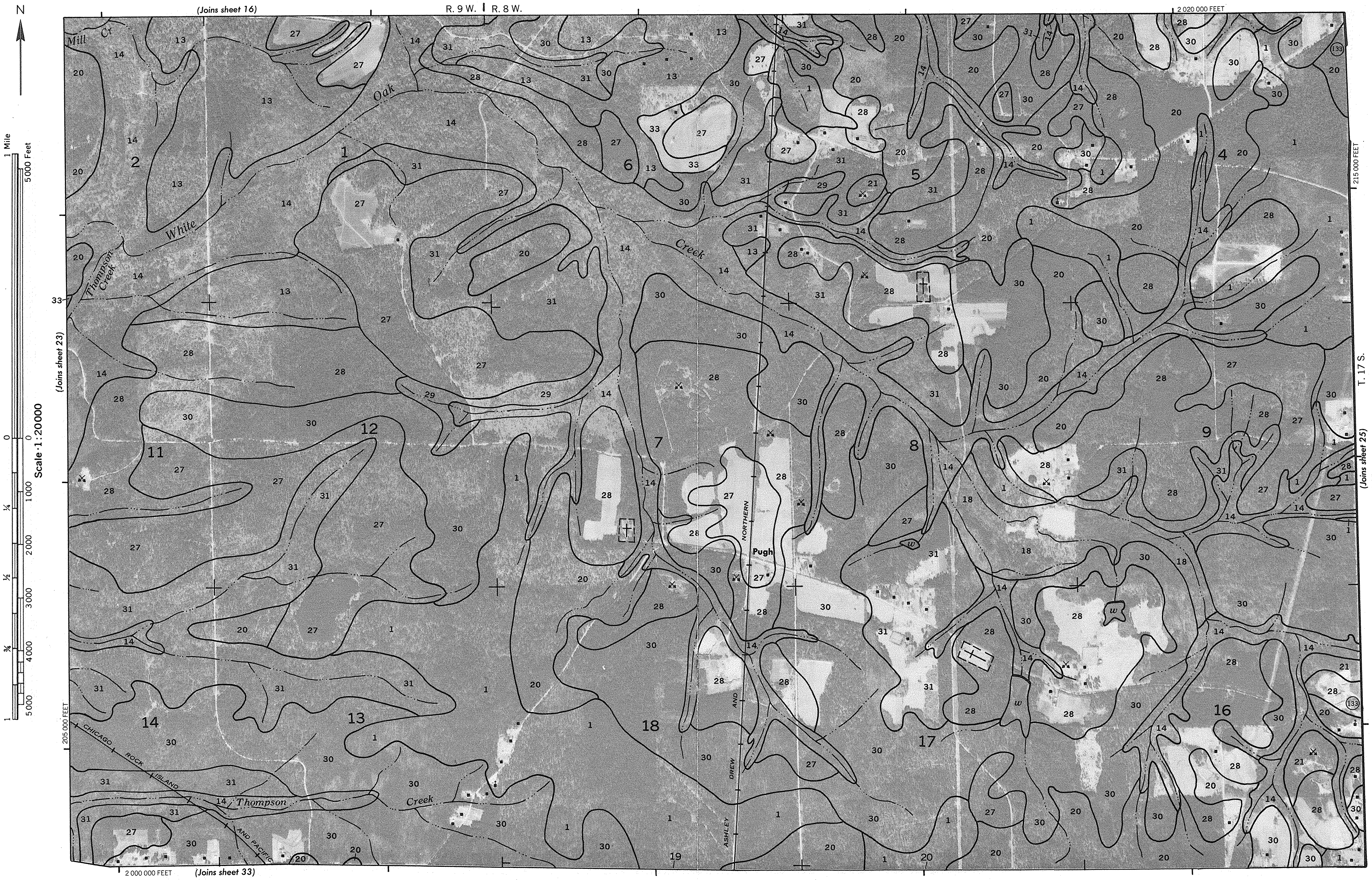
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 22

ASHLEY COUNTY, ARKANSAS NO. 23

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 24



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 24

25

ASHLEY COUNTY, ARKANSAS NO. 25

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 26

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

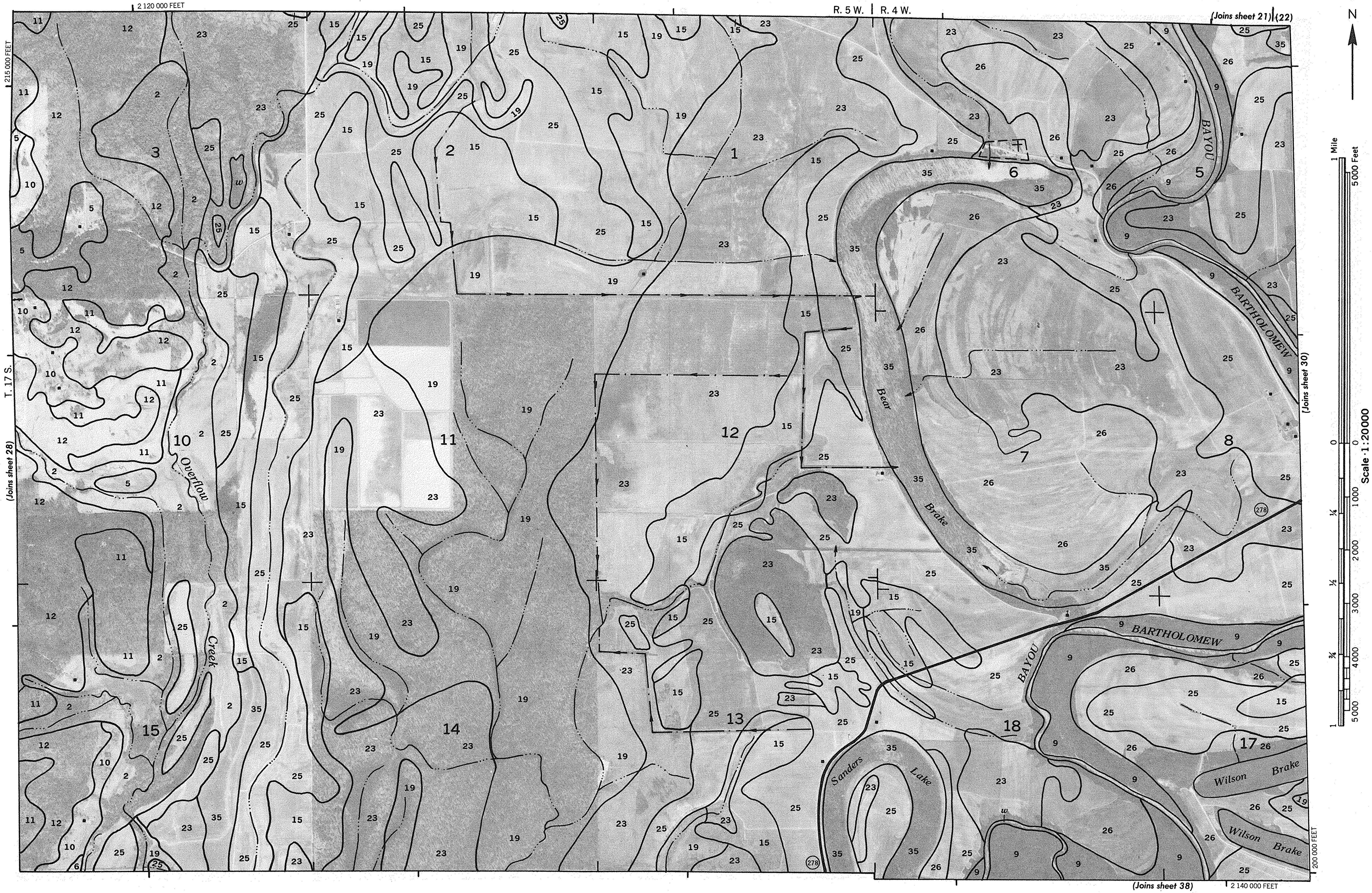
ASHLEY COUNTY, ARKANSAS NO. 26

ASHLEY COUNTY, ARKANSAS NO. 27

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 28



ASHLEY COUNTY, ARKANSAS NO. 29

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

N

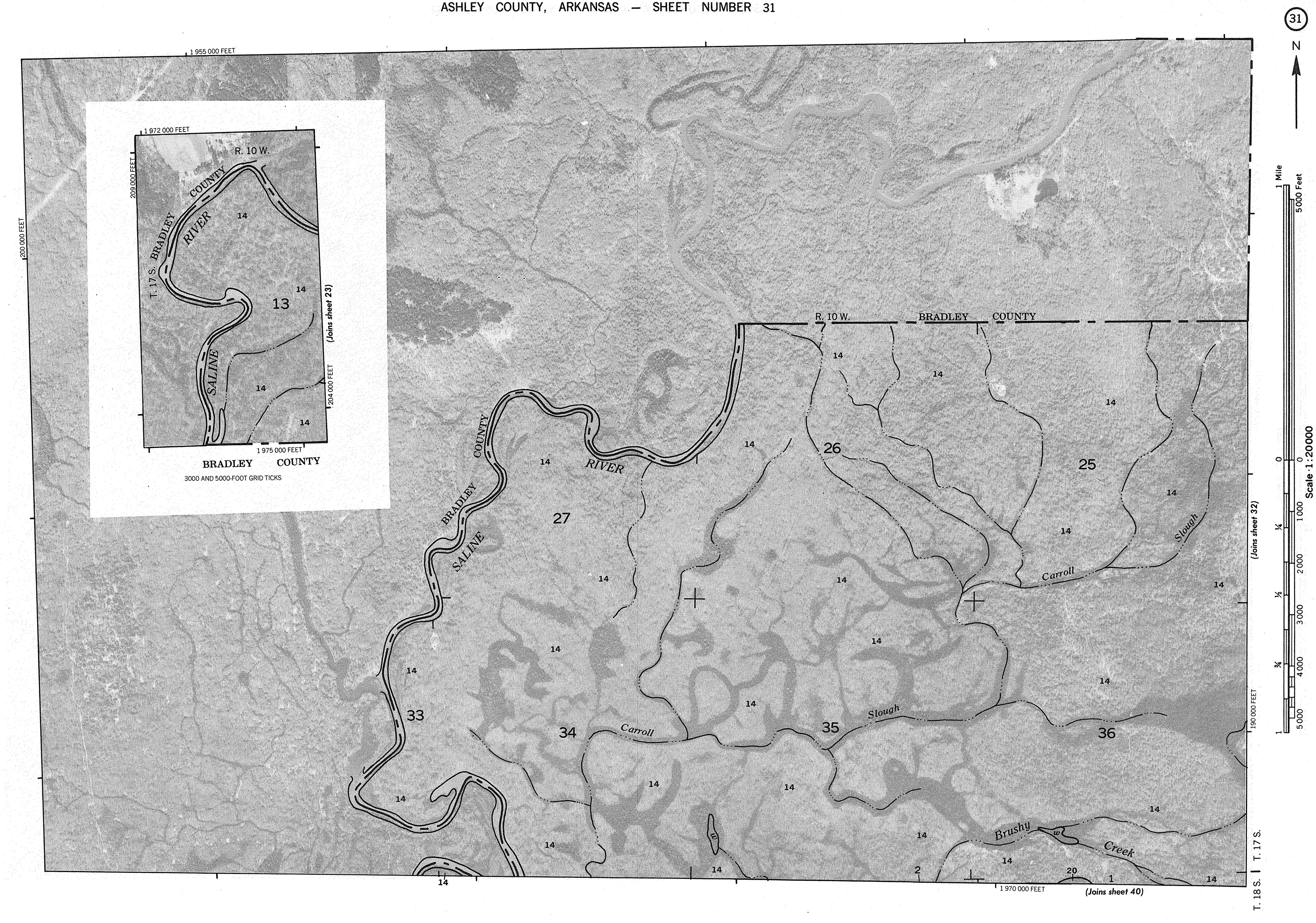
1 Mile
5000 Feet
Scale 1:20000
0 ¼ ½ ¾ 1
0 1000 2000 3000 4000 5000

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 30

ASHLEY COUNTY, ARKANSAS NO. 31

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

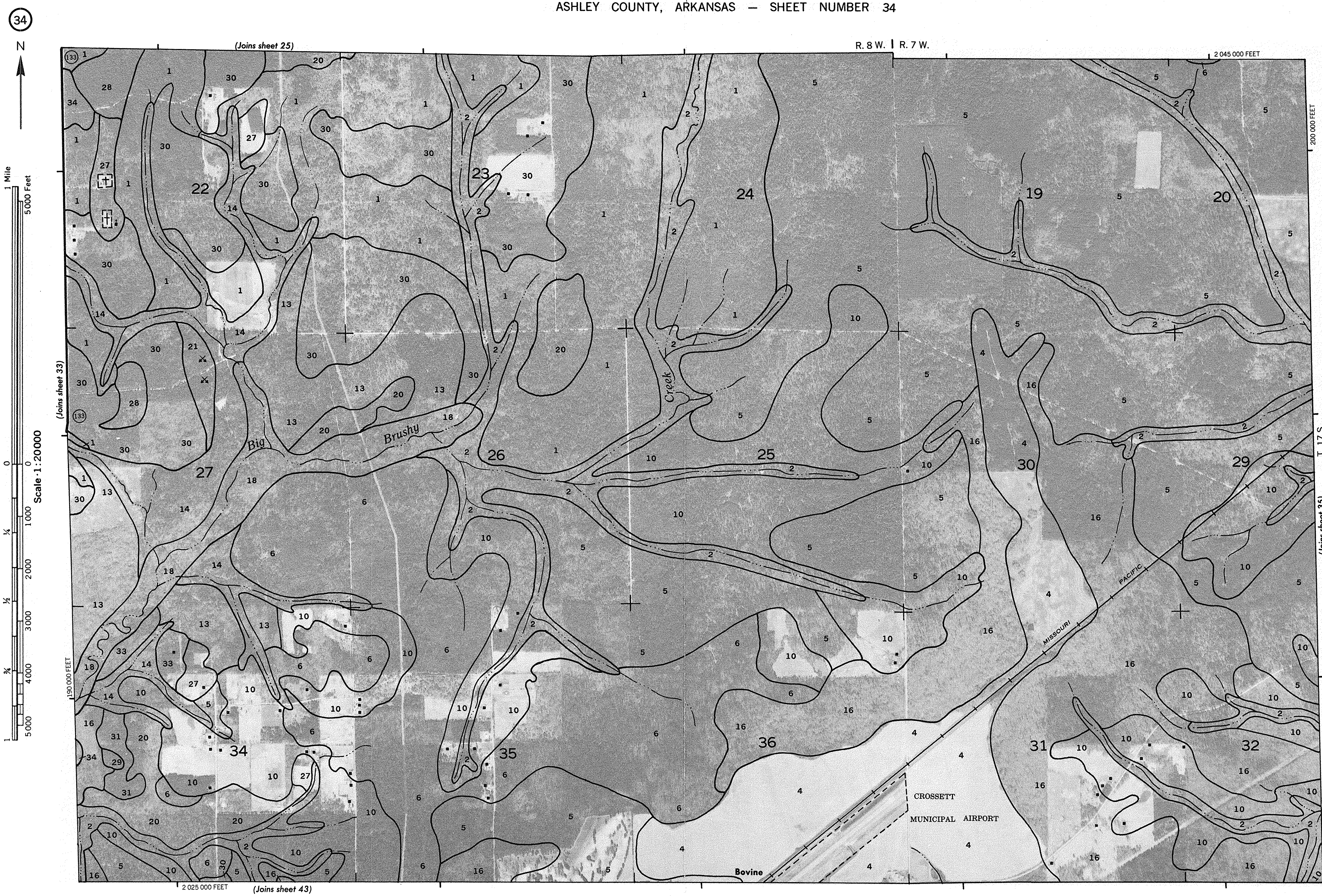


This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 32

ASHLEY COUNTY, ARKANSAS NO. 33

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 34

35

N

1 Mile

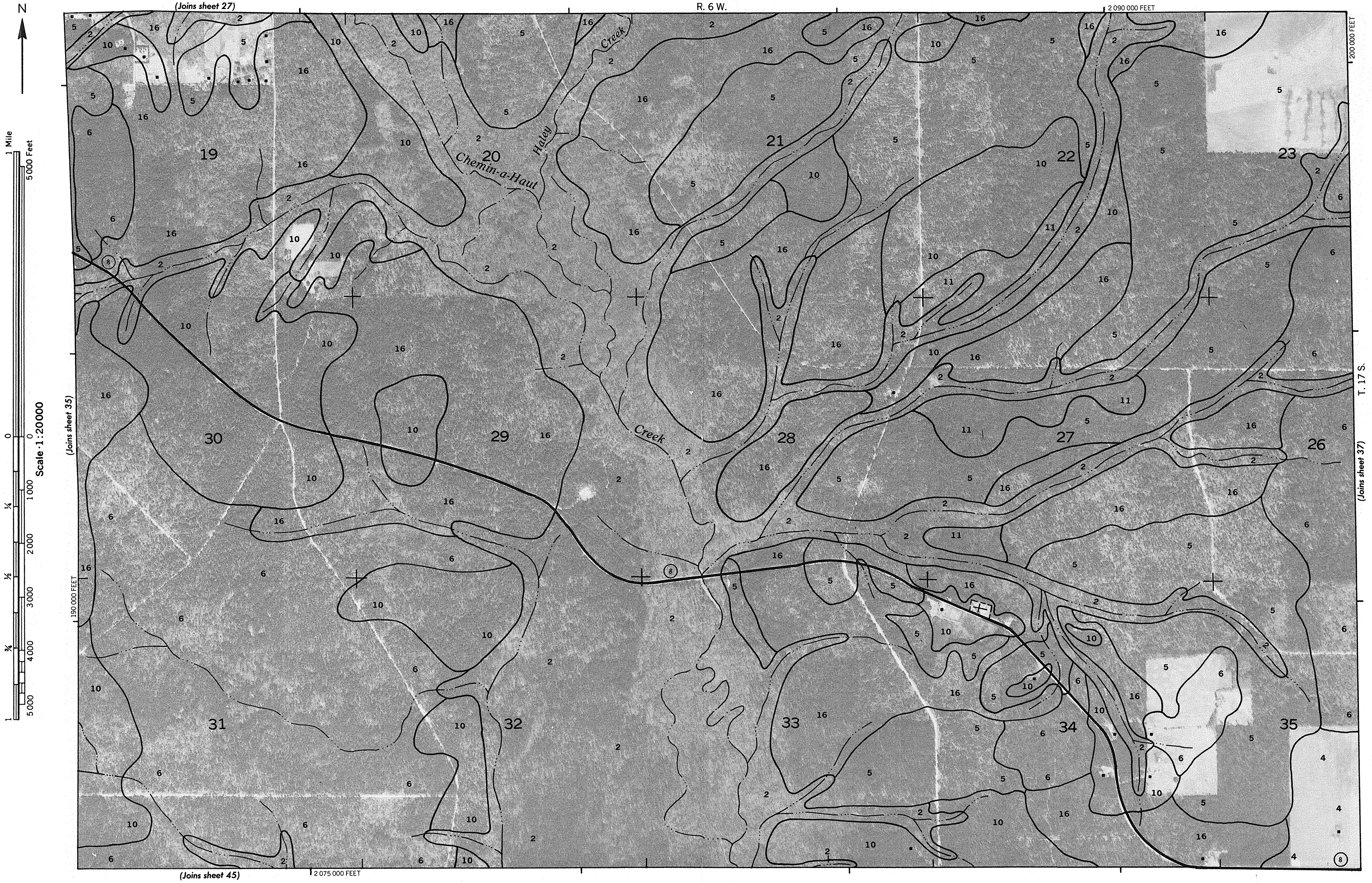
5000 Feet

Scale 1:20000

ASHLEY COUNTY, ARKANSAS NO. 35

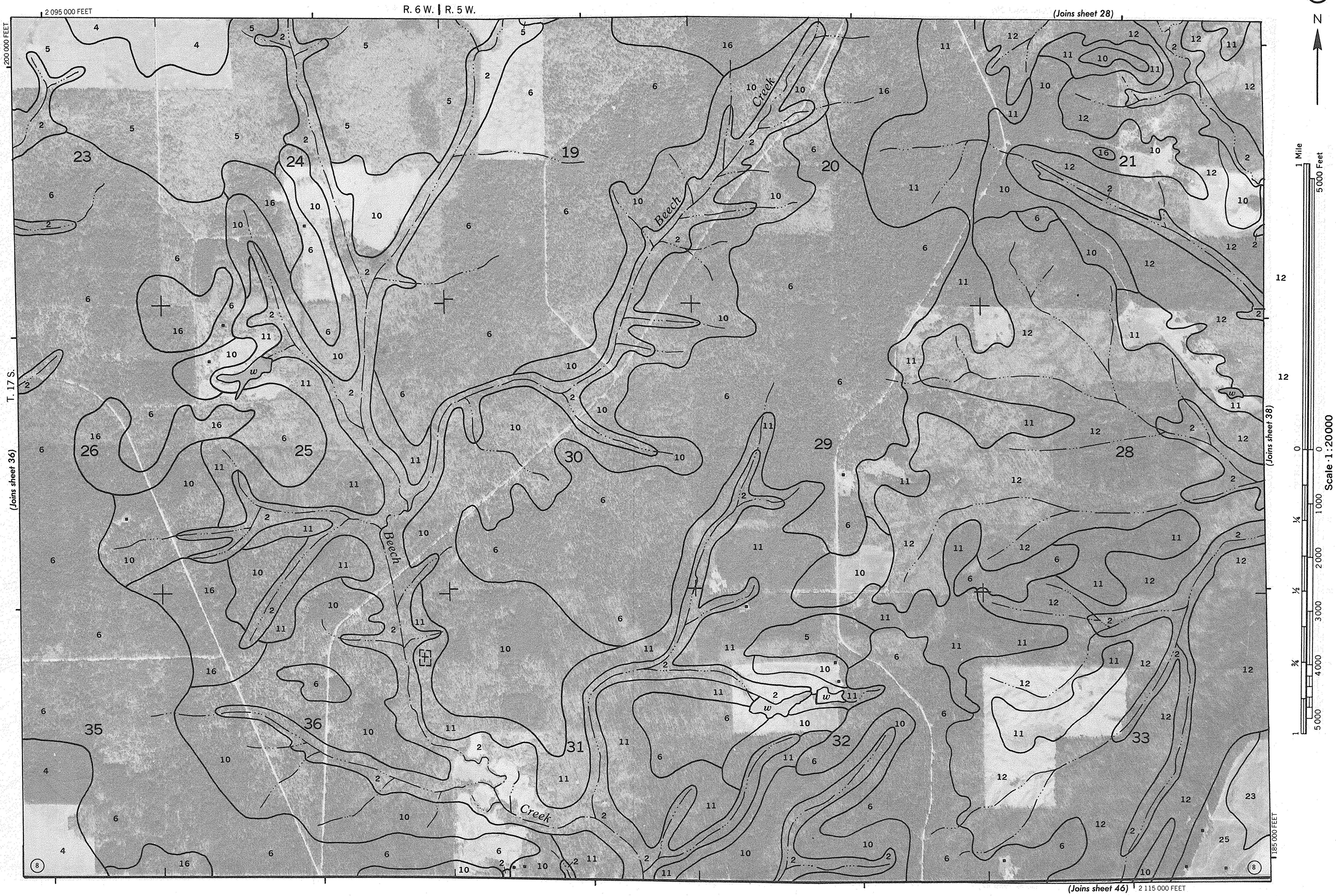
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 36



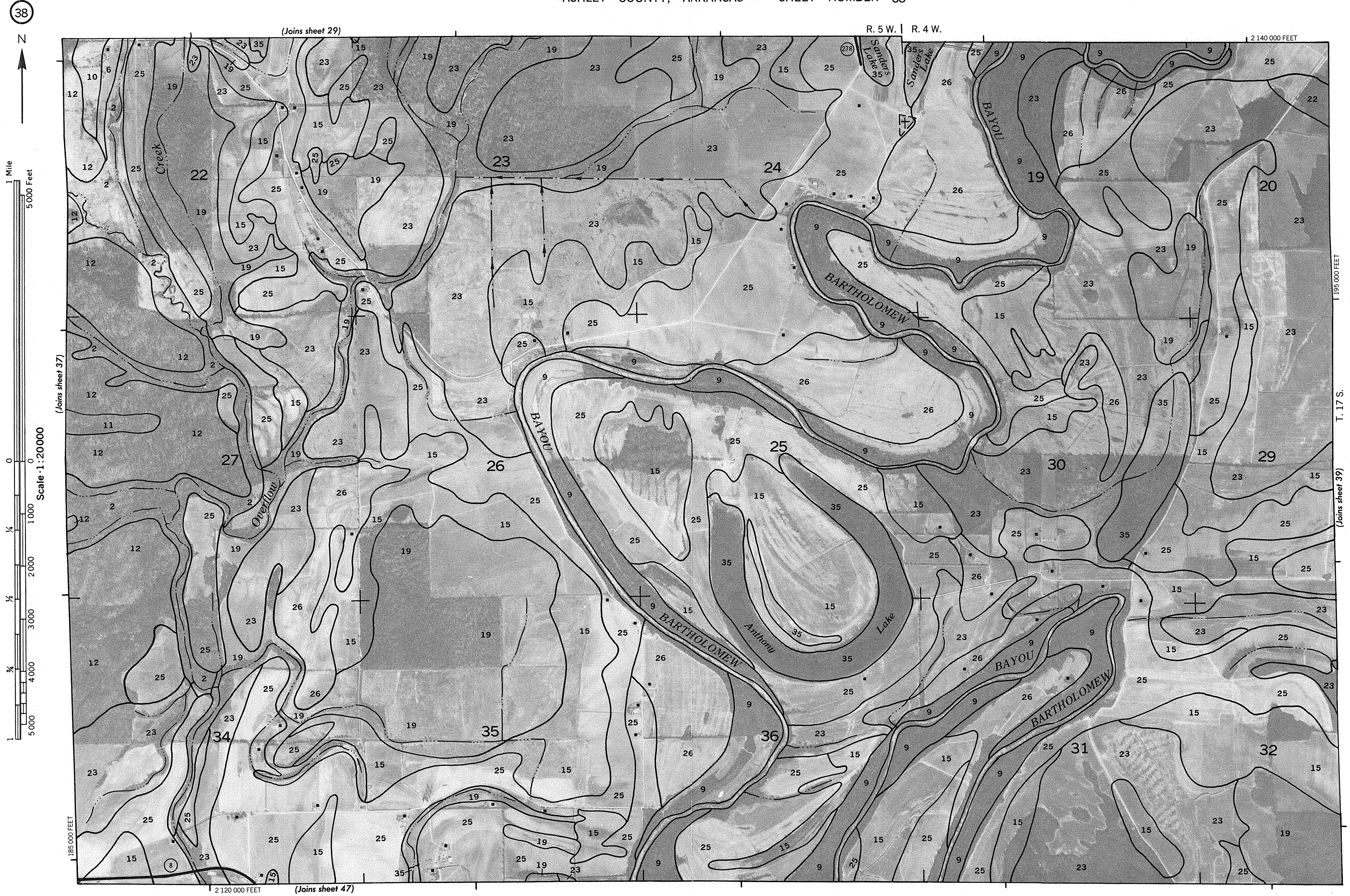
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 36



ASHLEY COUNTY, ARKANSAS NO. 37

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 38

ASHLEY COUNTY, ARKANSAS NO. 39

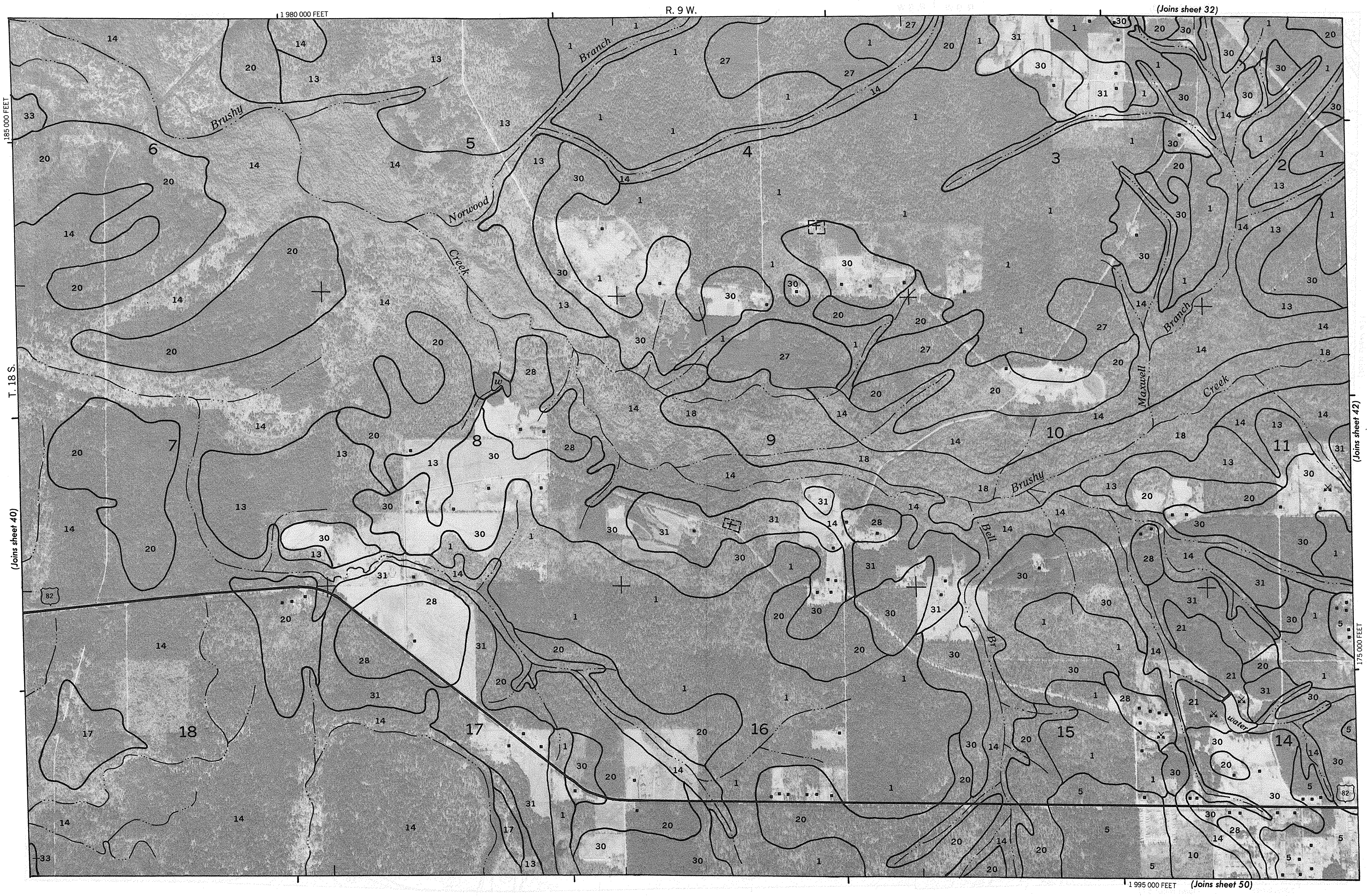
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 40

41

N



1 Mile
5000 Feet
Scale 1:20000

ASHLEY COUNTY, ARKANSAS NO. 41

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

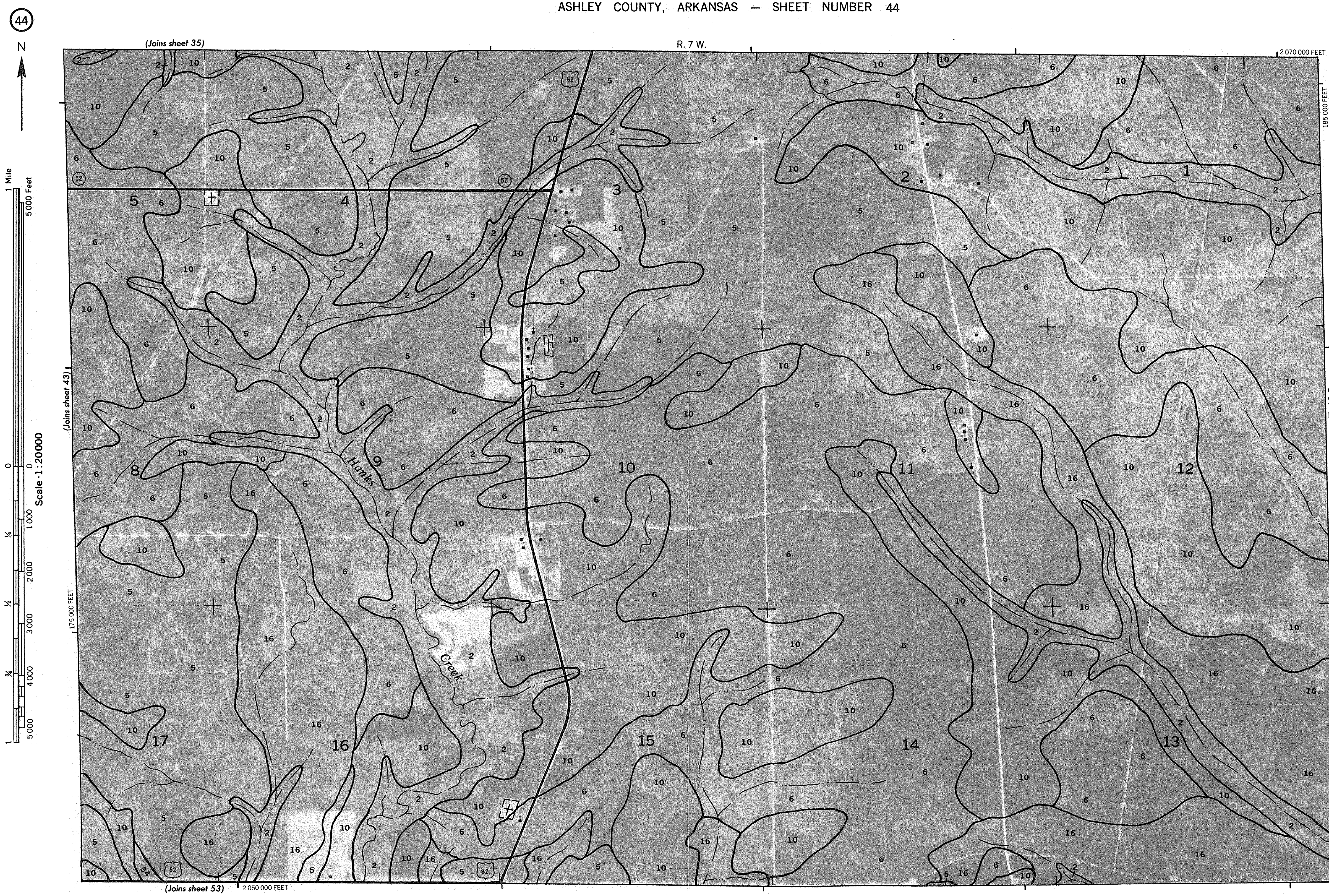
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 42

43

ASHLEY COUNTY, ARKANSAS NO. 43

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

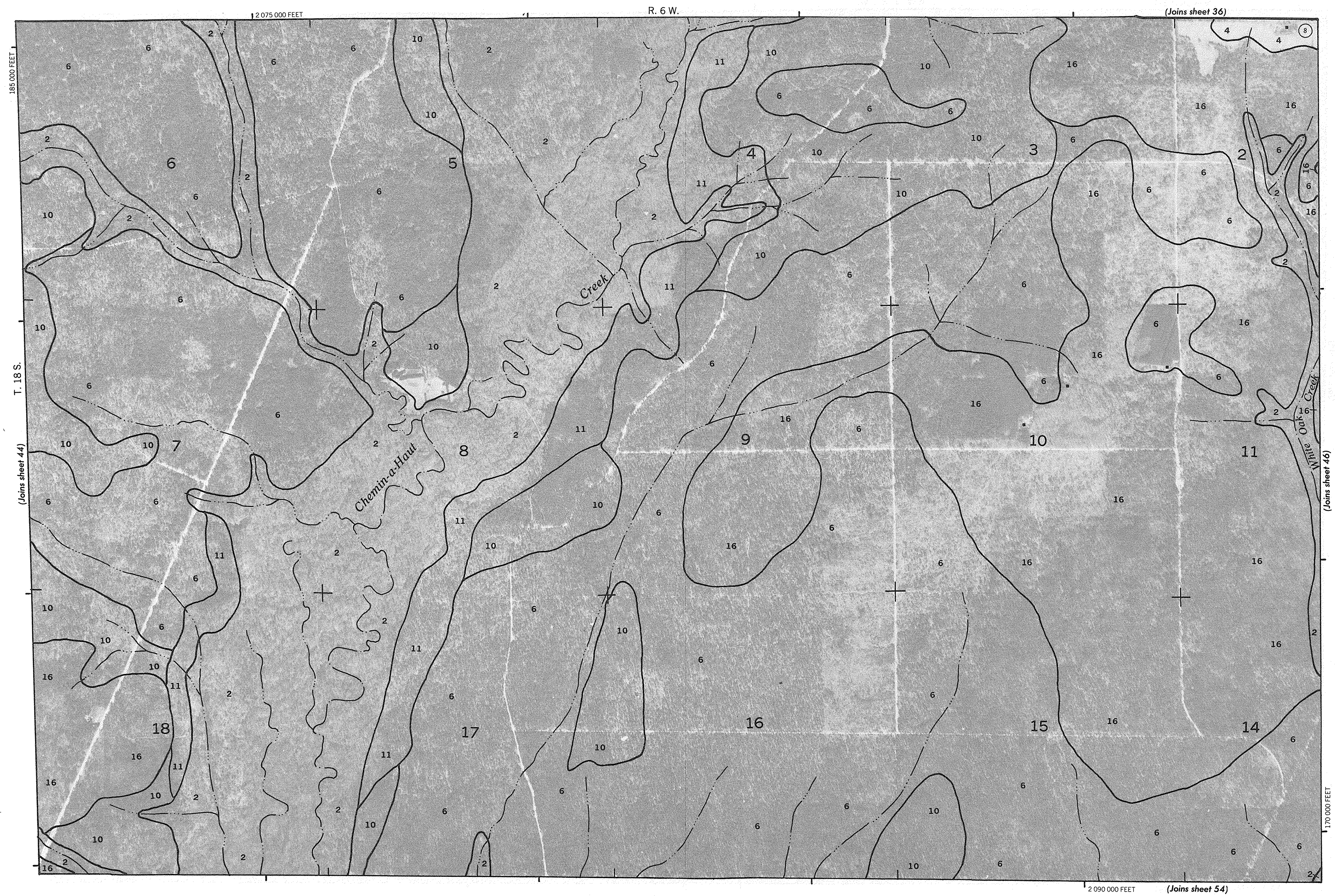


This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 44

45

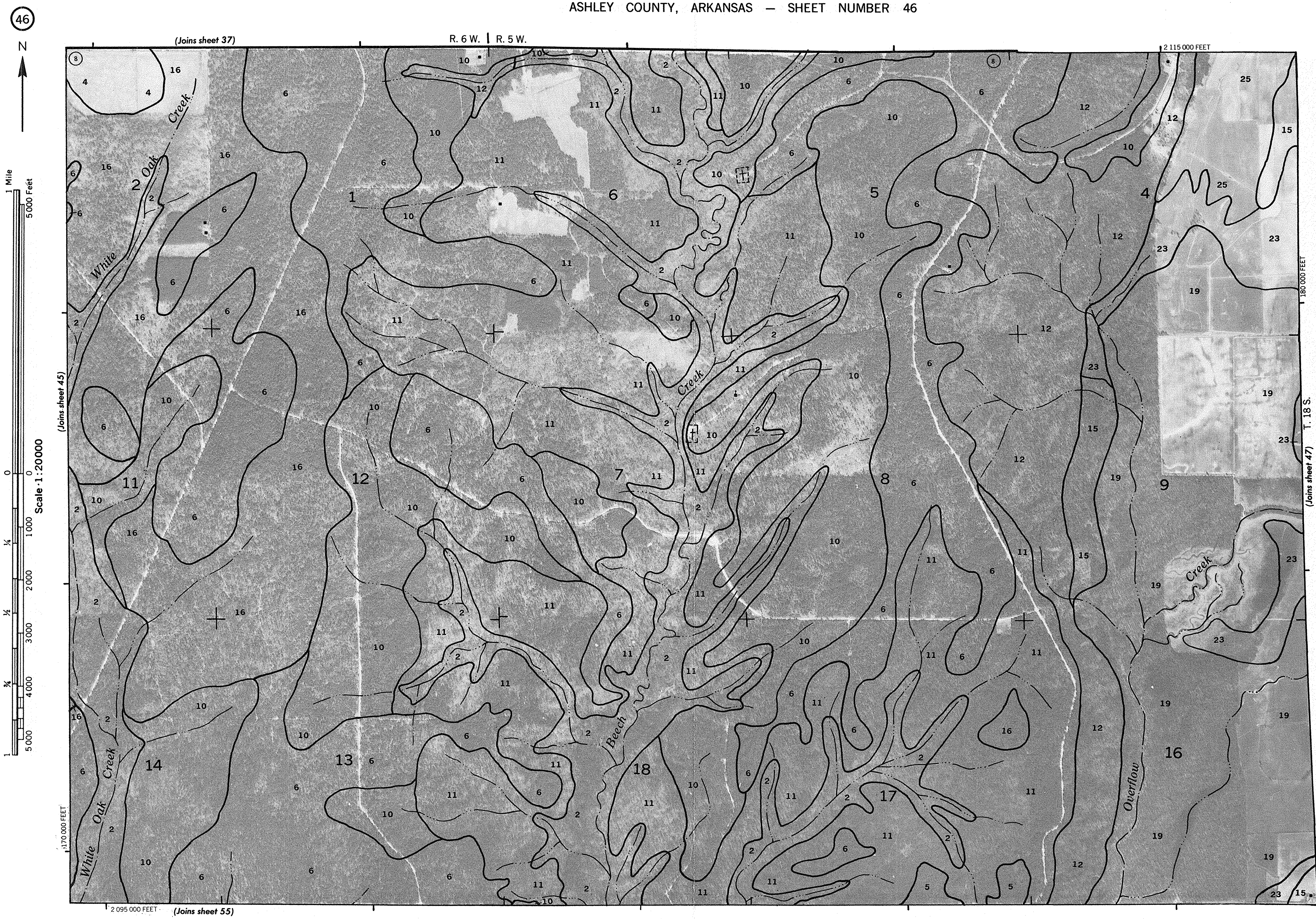
N



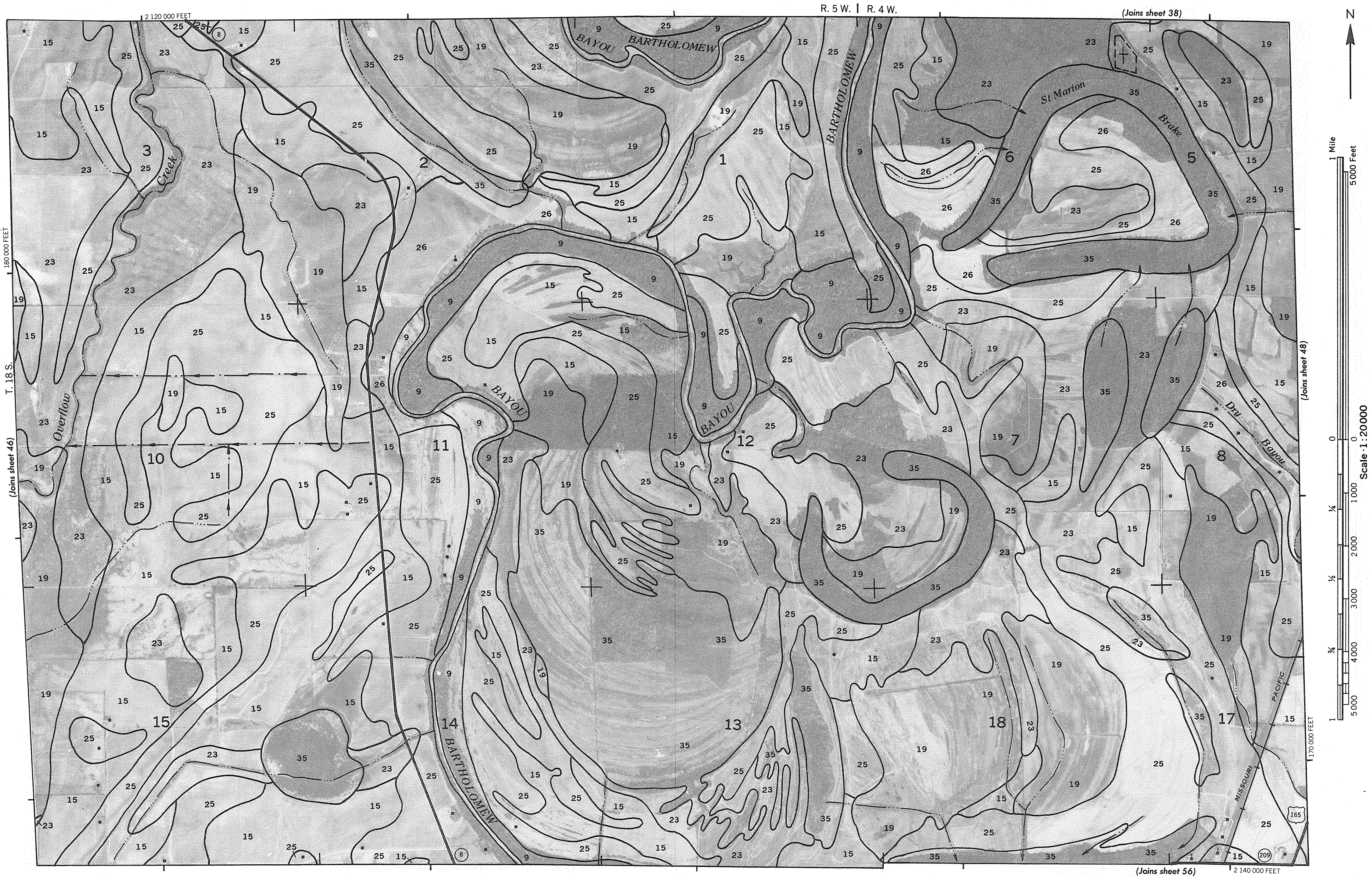
1 Mile
5000 Feet
0
0
1000
¼
2000
½
3000
¾
4000
1
5000
Scale 1:20000

ASHLEY COUNTY, ARKANSAS NO. 45

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

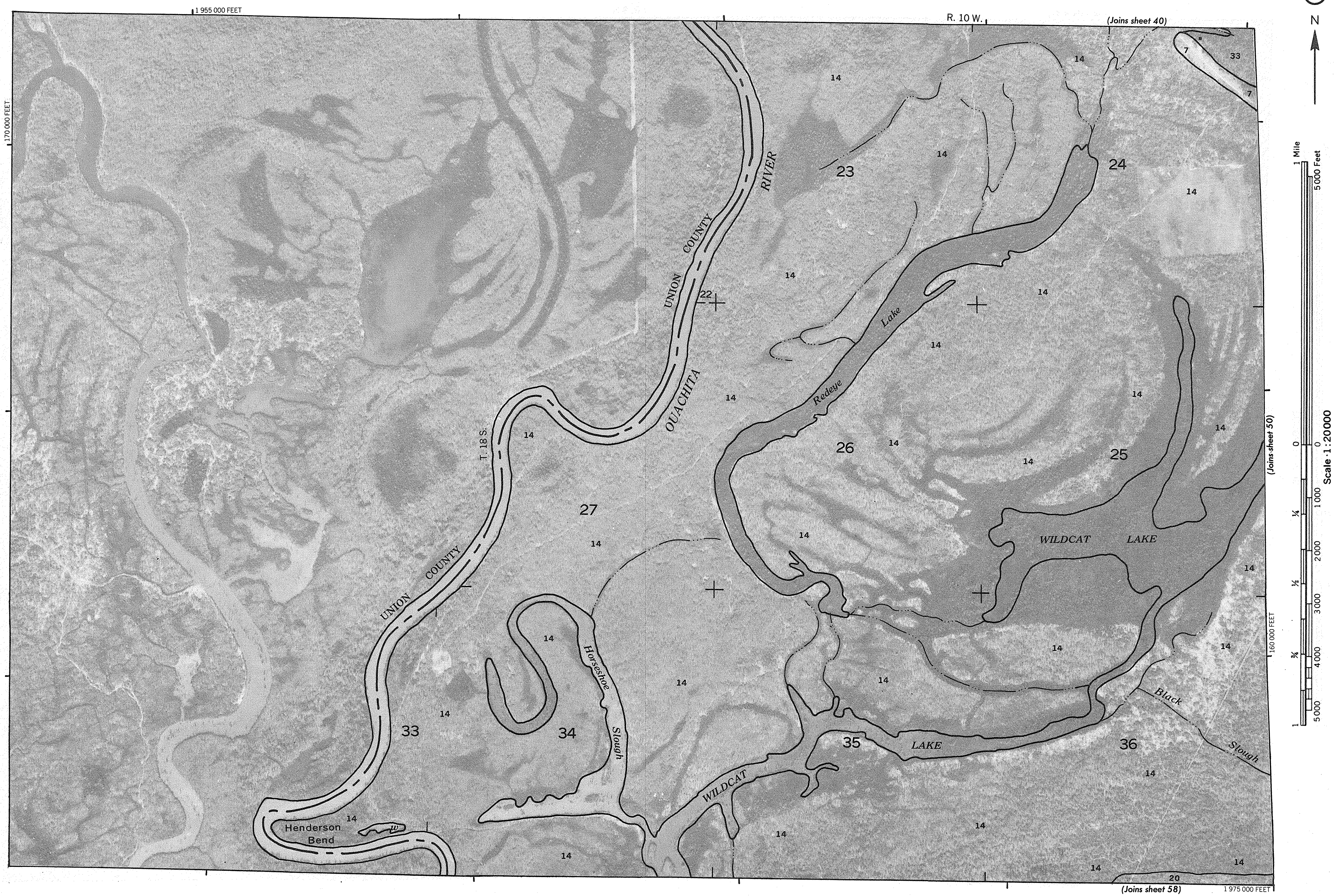


ASHLEY COUNTY, ARKANSAS NO. 47

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

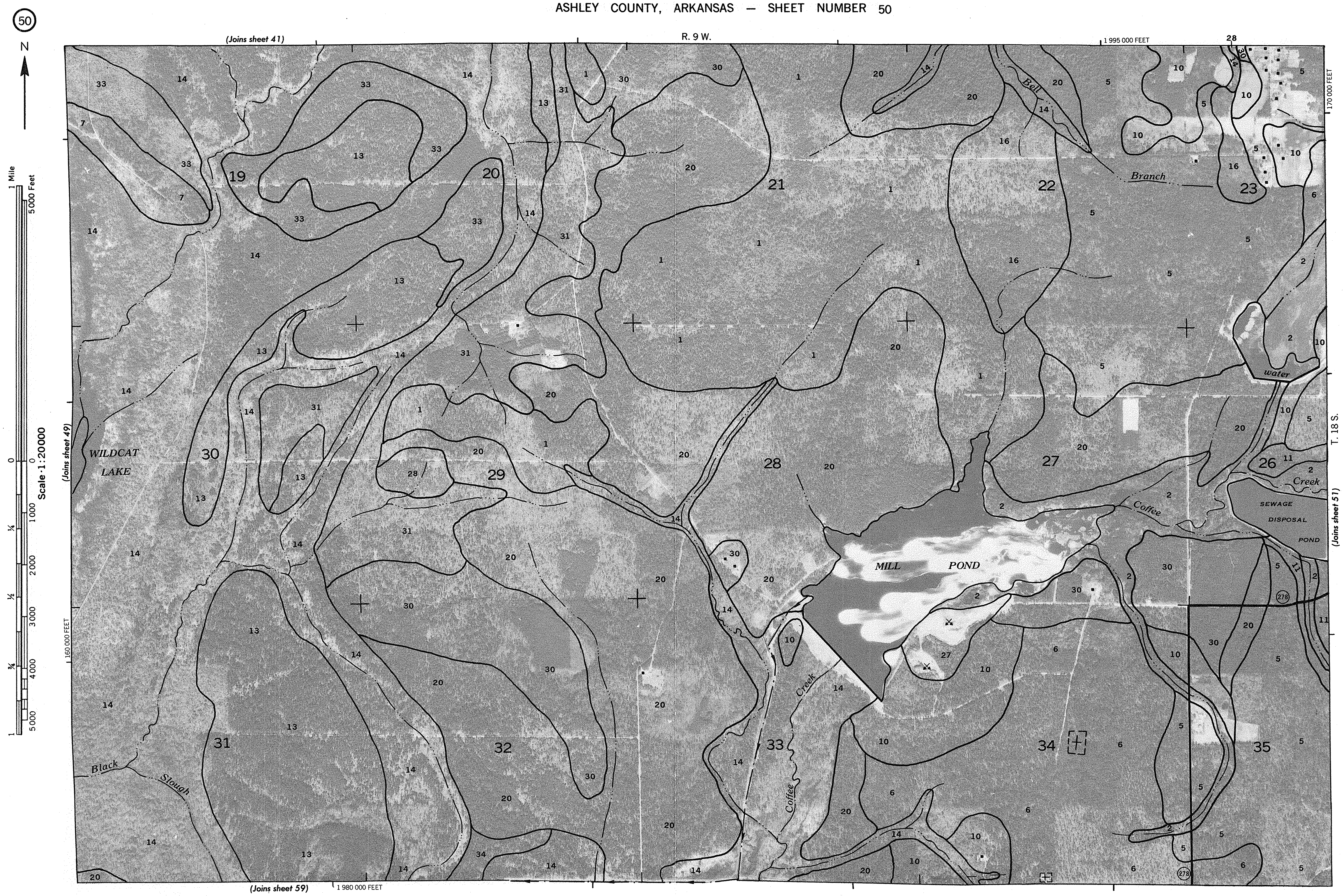
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 48



ASHLEY COUNTY, ARKANSAS NO. 49

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

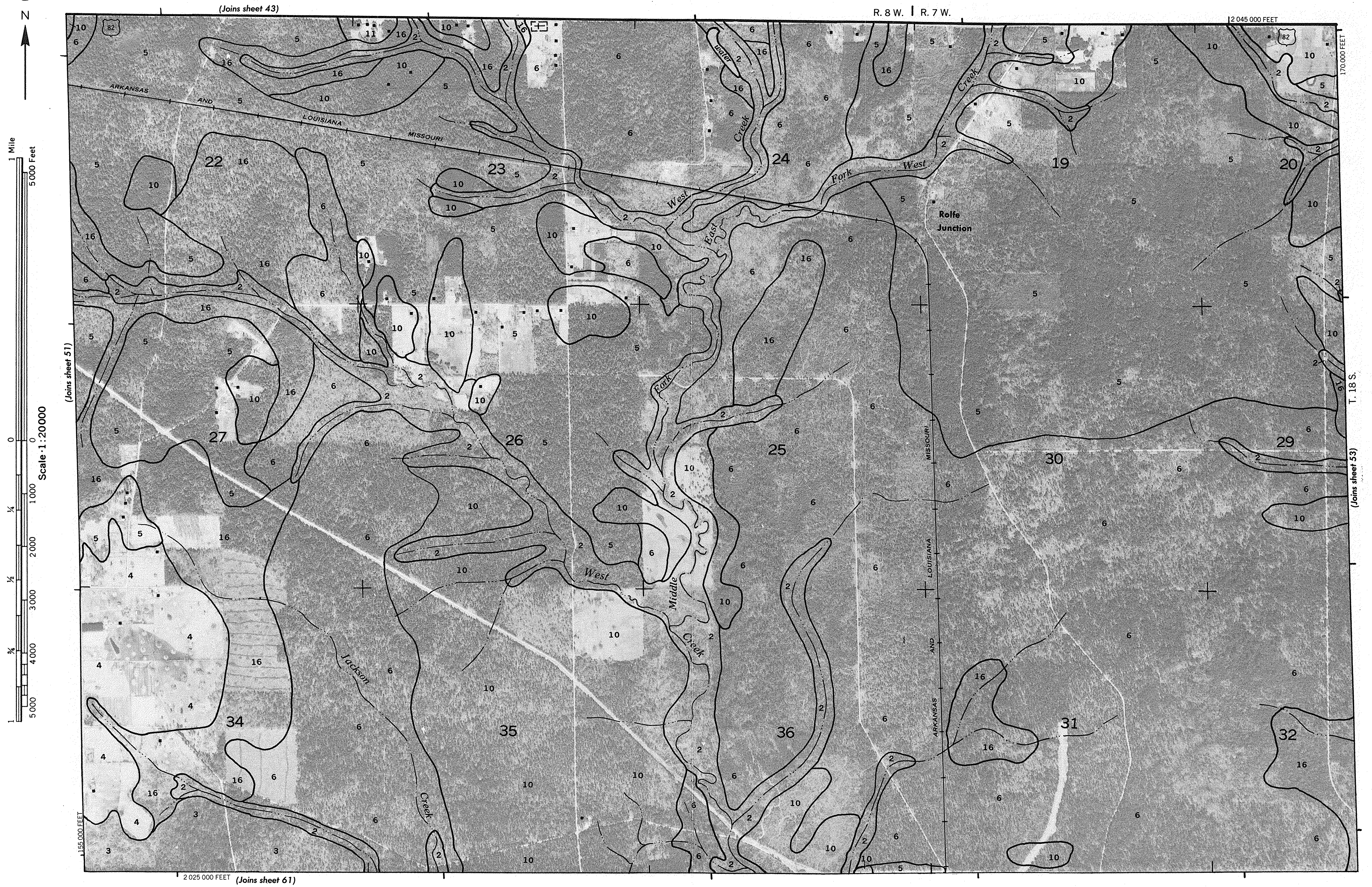


This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 50

ASHLEY COUNTY, ARKANSAS NO. 51

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

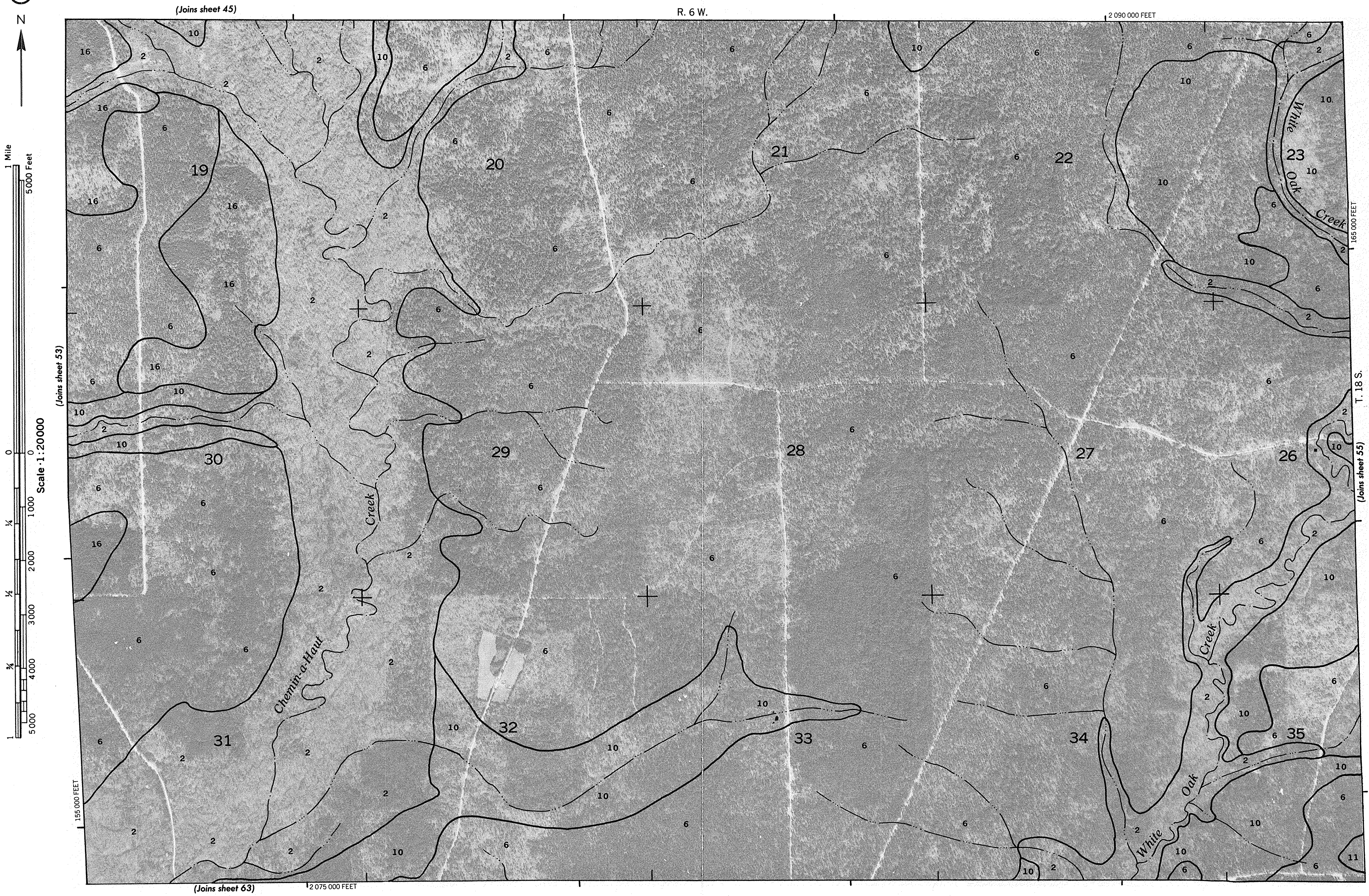
ASHLEY COUNTY, ARKANSAS NO. 52

53

ASHLEY COUNTY, ARKANSAS NO. 53

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 54



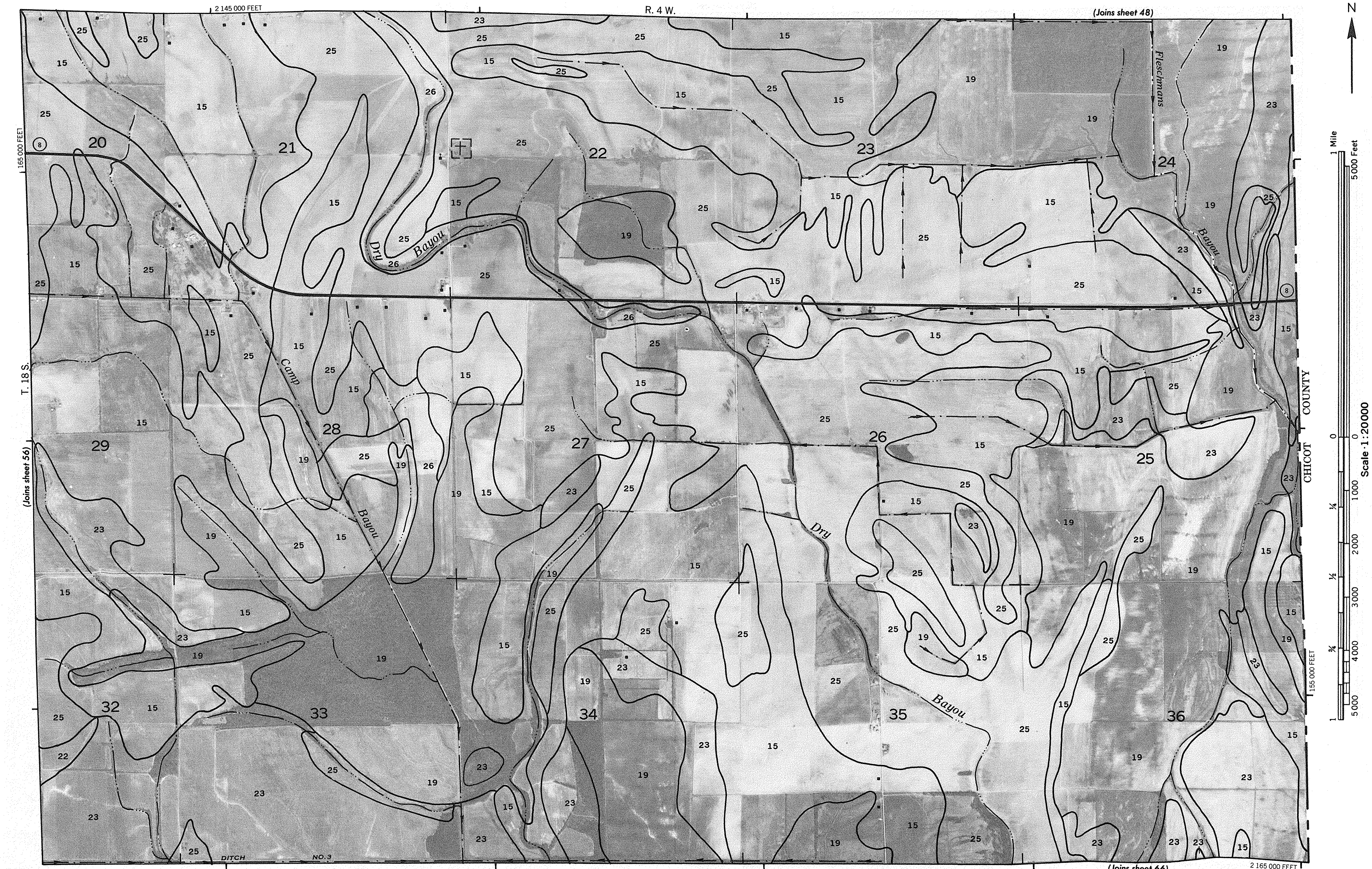
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 54

ASHLEY COUNTY, ARKANSAS NO. 55

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



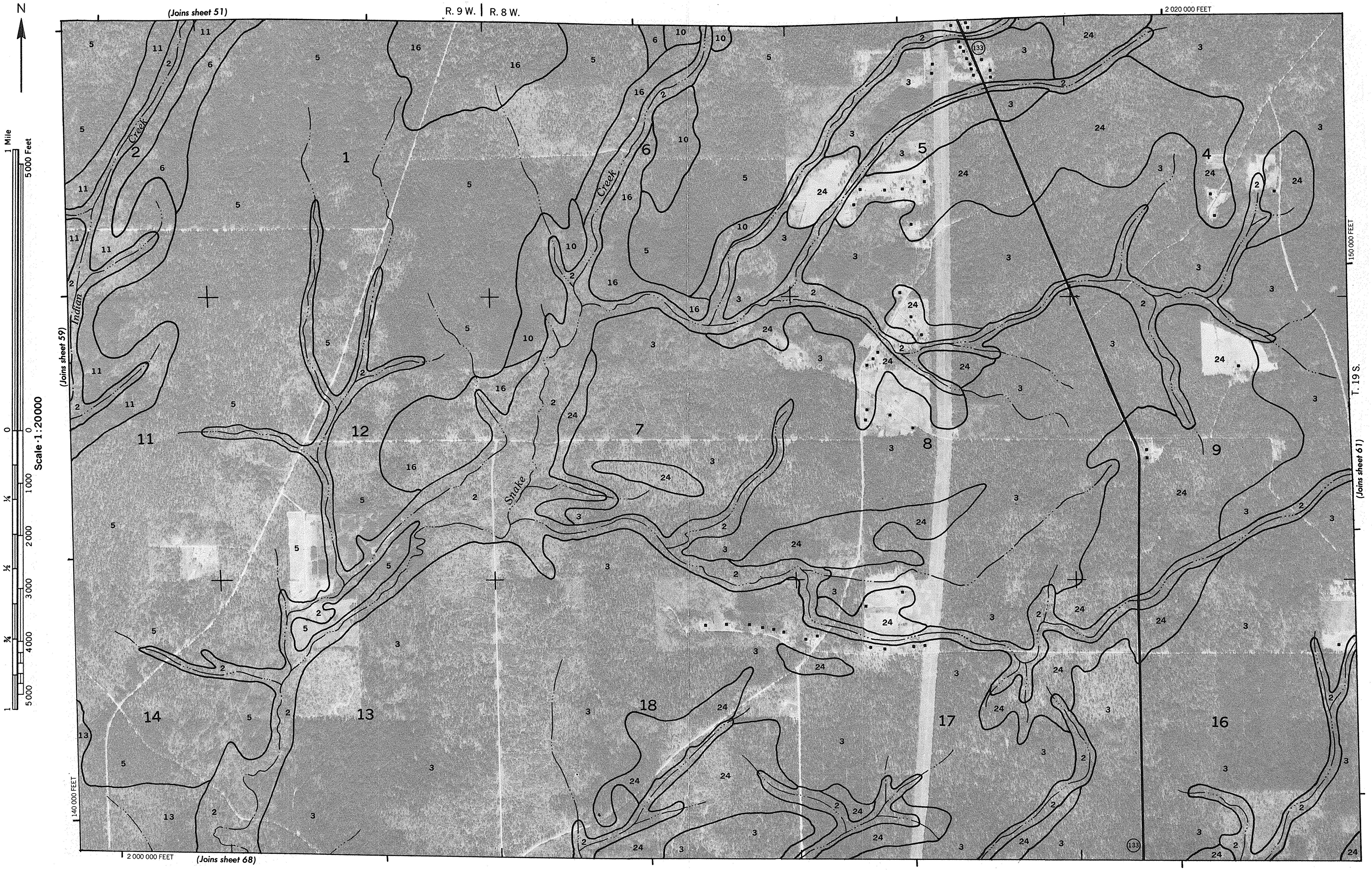
ASHLEY COUNTY, ARKANSAS NO. 57

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 59

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 60

ASHLEY COUNTY, ARKANSAS NO. 61

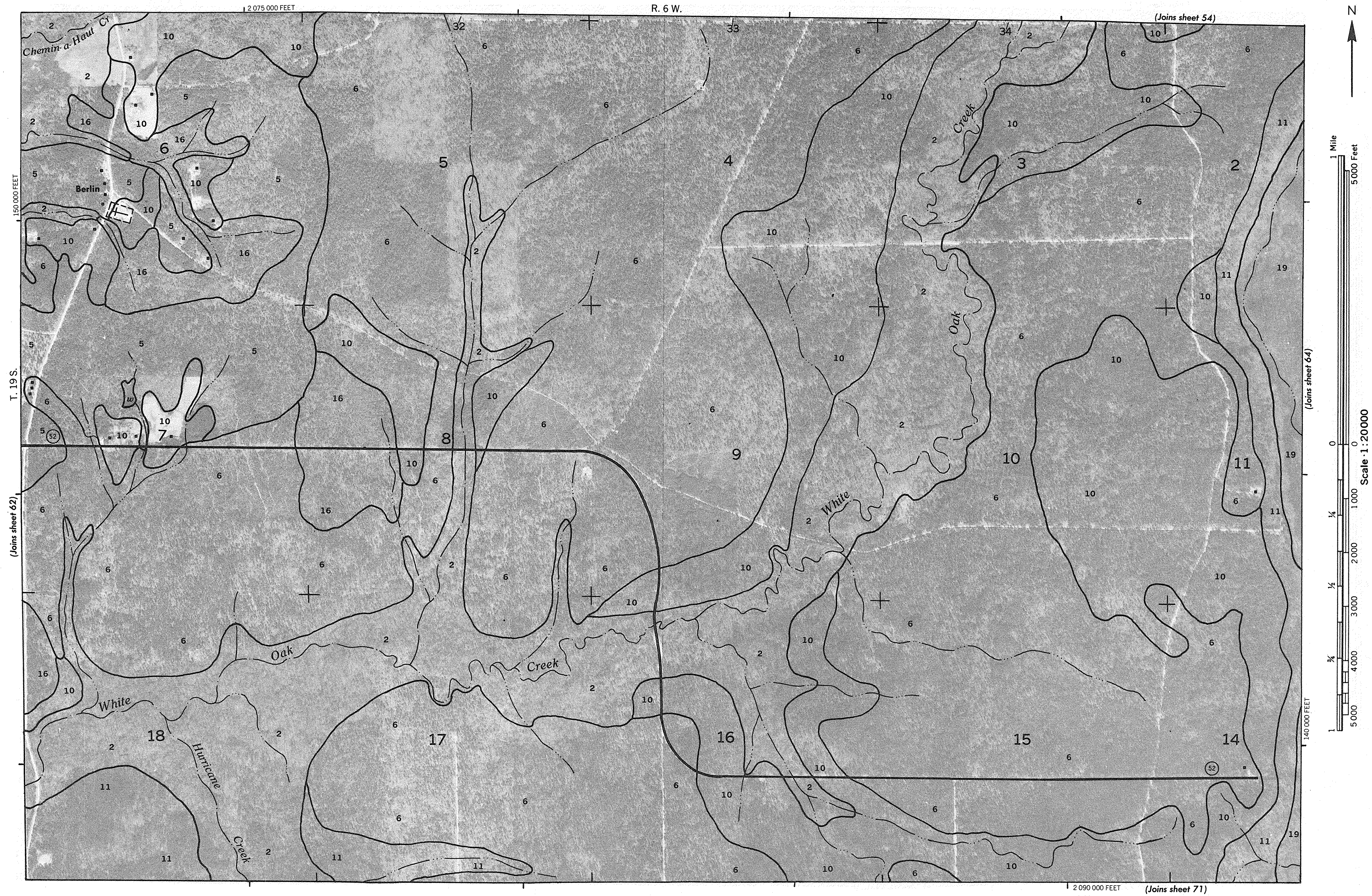
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

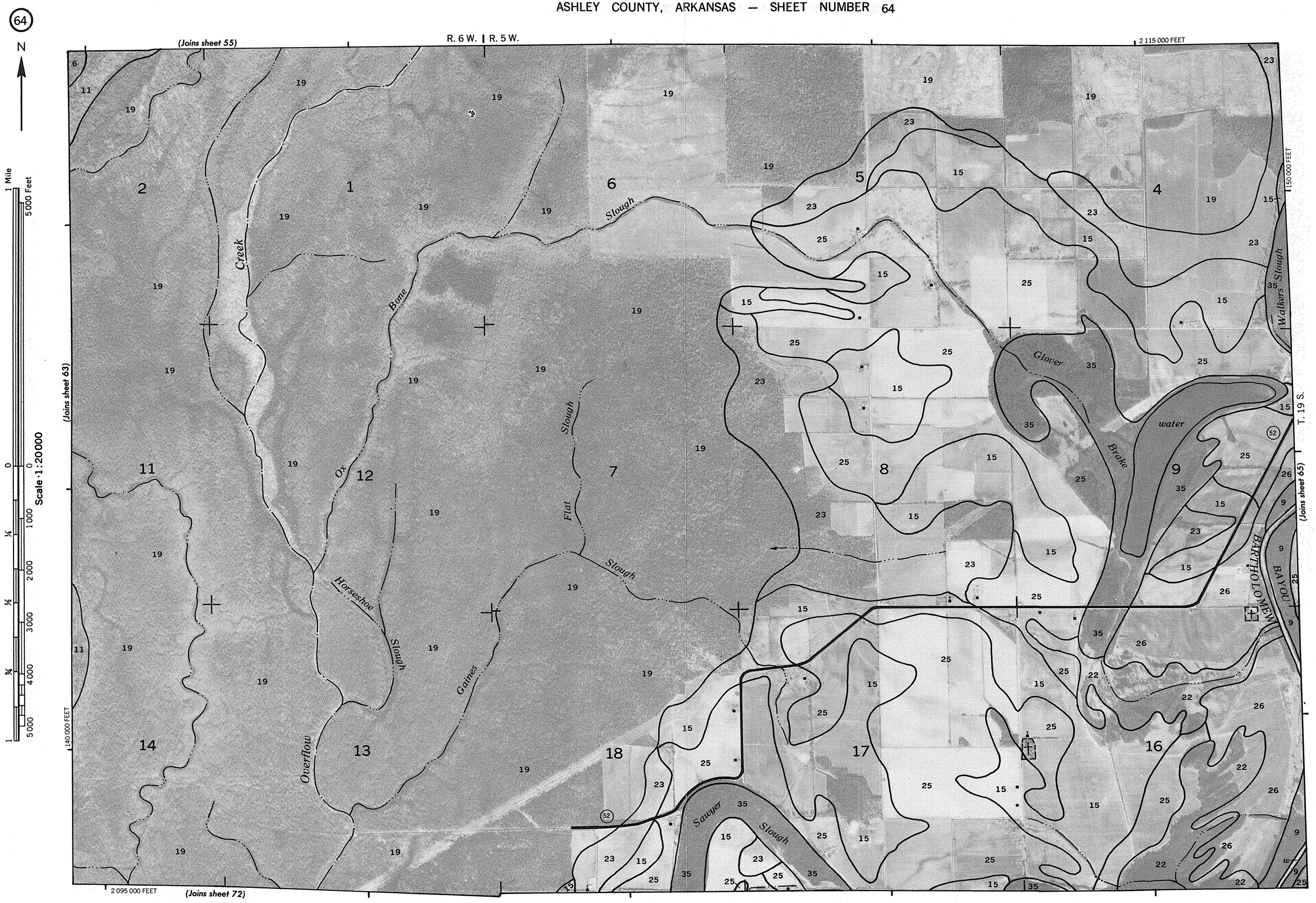
This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 62

ASHLEY COUNTY, ARKANSAS NO. 63

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.





This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 64

ASHLEY COUNTY, ARKANSAS NO. 65

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

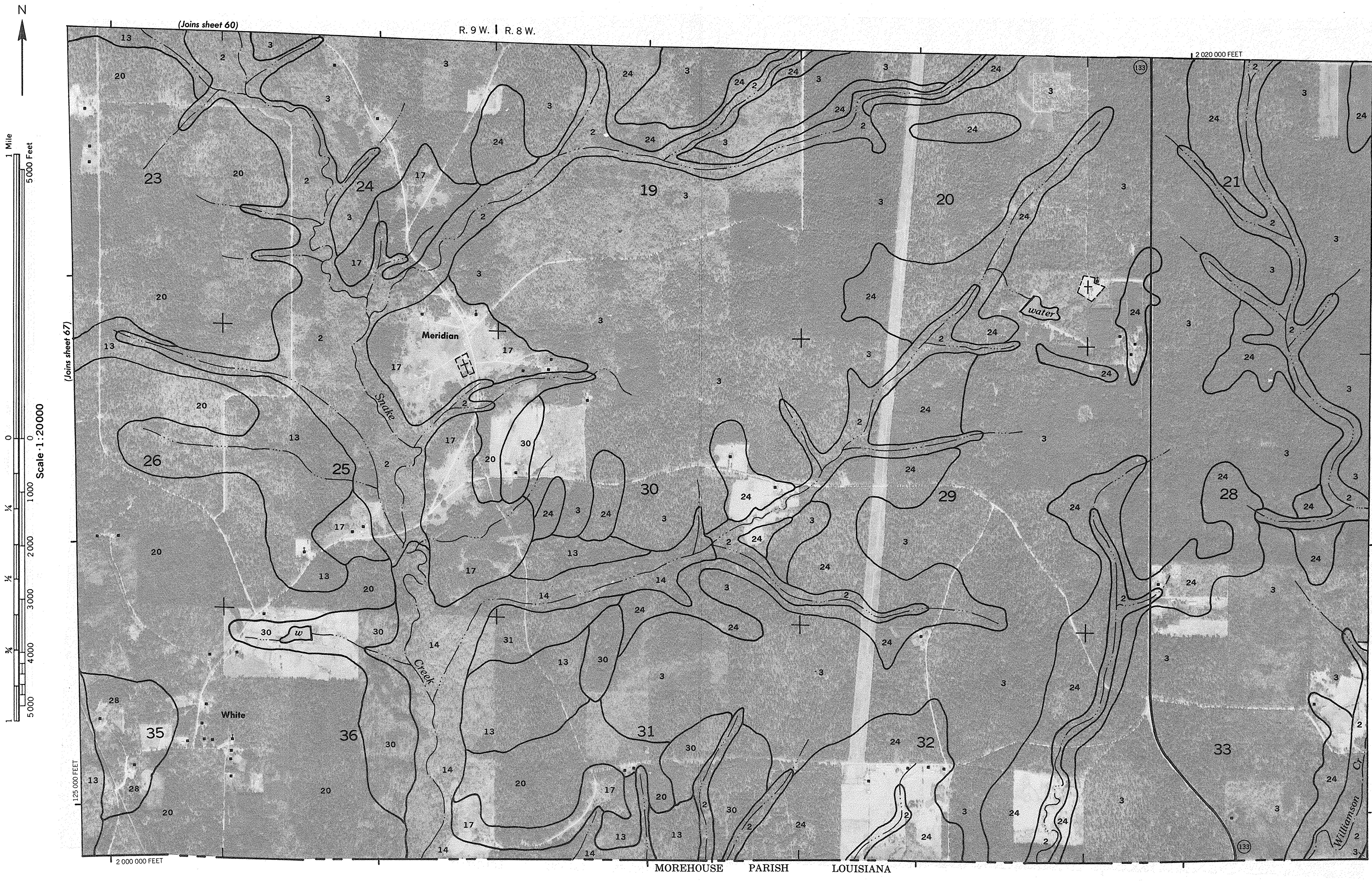
ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 66

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 66

ASHLEY COUNTY, ARKANSAS NO. 57

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

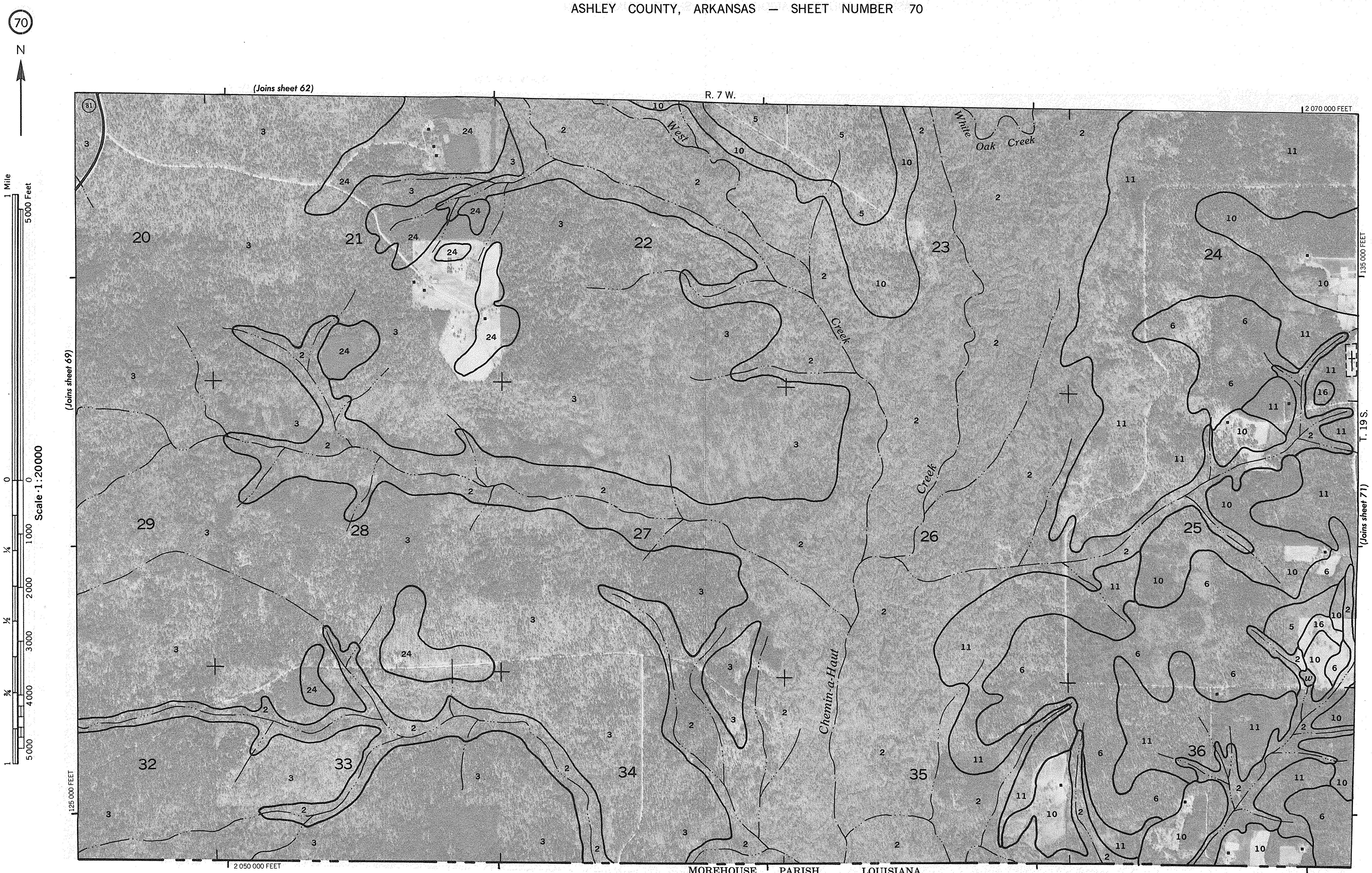


This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 68

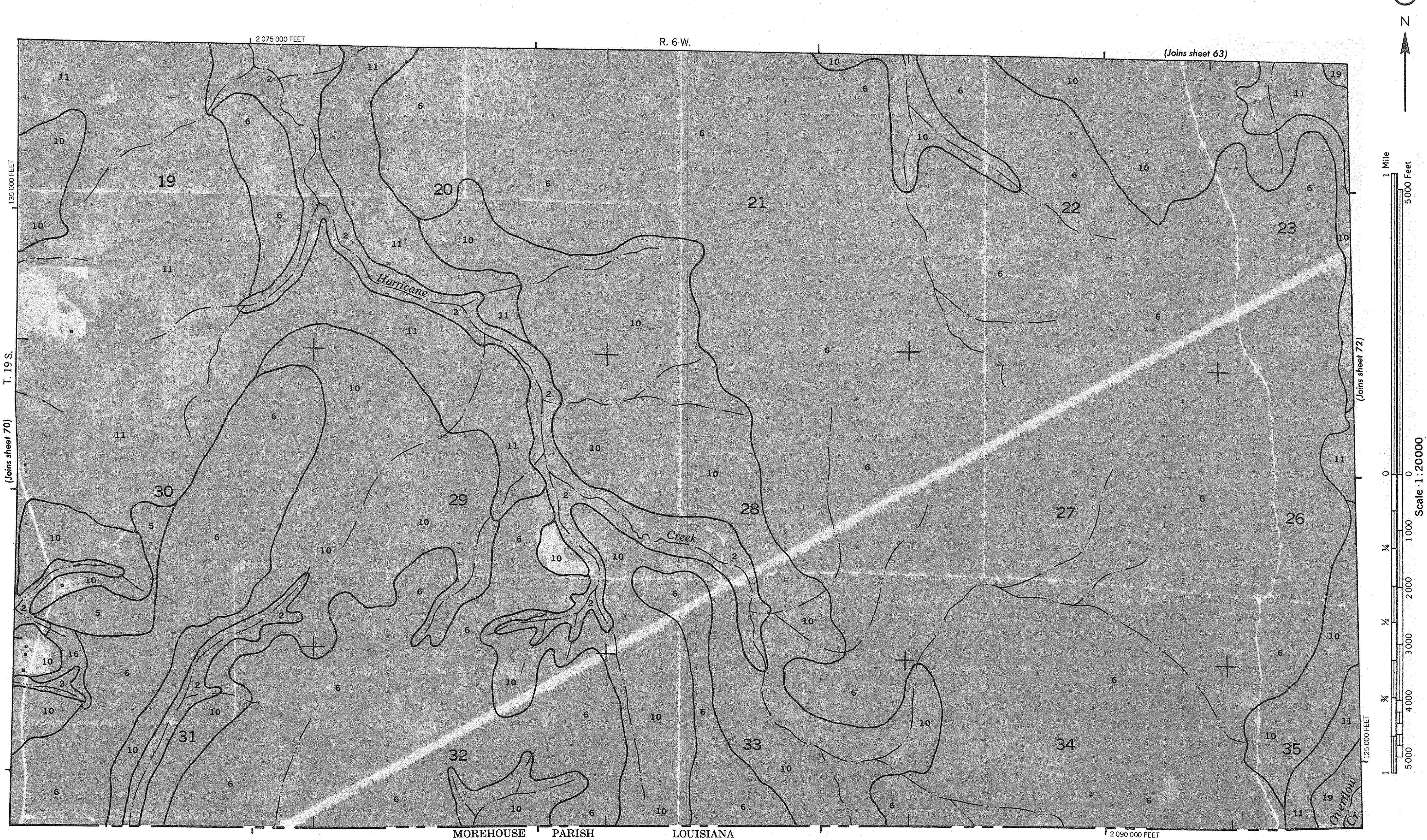
ASHLEY COUNTY, ARKANSAS NO. 69

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

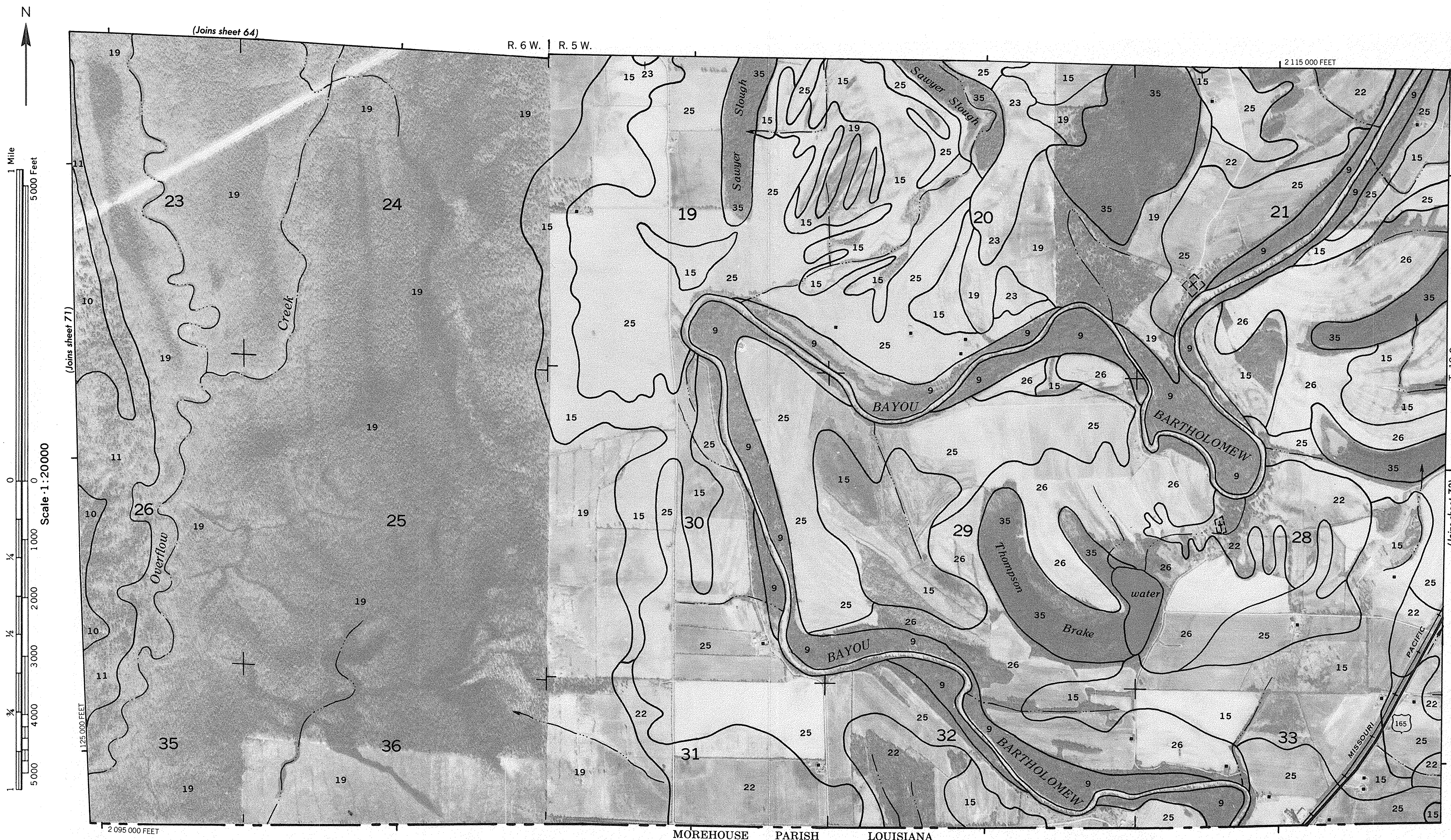
ASHLEY COUNTY, ARKANSAS NO. 70



ASHLEY COUNTY, ARKANSAS NO. 71

This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 72



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 72

ASHLEY COUNTY, ARKANSAS NO. 73

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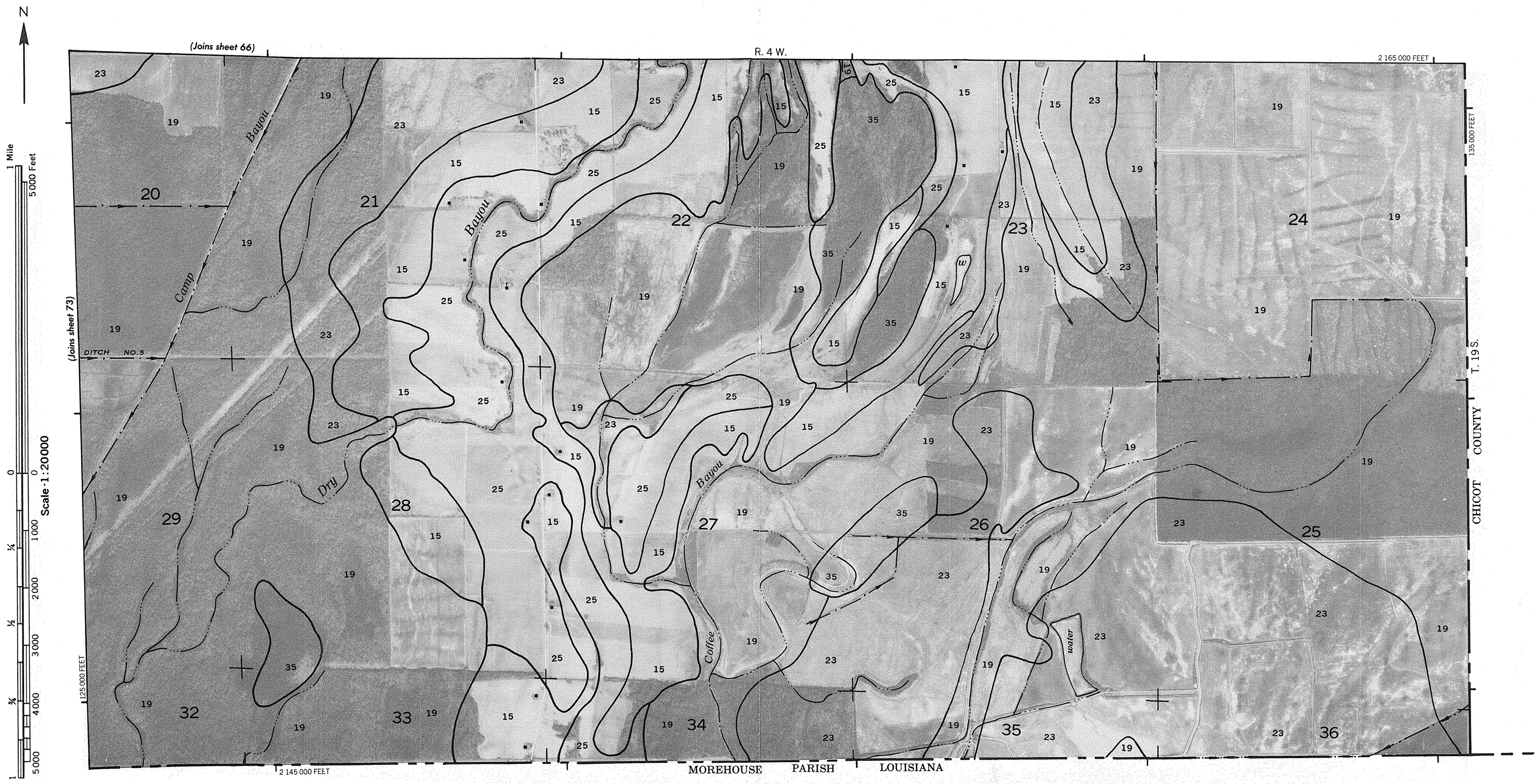
ASHLEY COUNTY, ARKANSAS — SHEET NUMBER 74



This map is compiled on 1977 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ASHLEY COUNTY, ARKANSAS NO. 74